MAY 21, 1960
VOL. 158 — NO. 21

Telephony®

THE JOURNAL OF THE TELEPHONE INDUSTRY

HAIL MOBILE SERVICE

Part of 100 persons attending ceremony placing into service Missouri's first dial mobile radio-telephone system by Grand River Mutual Telephone Corp. of Princeton, Mo. Missouri PSC Chairman T. W. Burton (center right) made first mobile call. In center is C. W. Chastain, Grand River general manager.

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 608 S. Dearborn St., Chicago 5, Ill. Subscription $4.50 per year. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879.

Guaranteed Circulation This Issue
13,728 of Which 13,209 Is Paid

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

We'll quote you on P.P.C.S.*... P.D.Q.!

Just let us analyze your requirements, and we'll give you a quote right away!

P. P. C. S. equipment by Stromberg-Carlson will complement, not obsolete, your present Type 40 line-identifying system. It's merely a case of minor additions. Your investment in toll ticketing is fully protected when you choose Stromberg-Carlson XY® Toll Ticketing.

And your XY equipment, because of the use of magnetic tape, is the most versatile and the most economical in the industry. It provides complete toll accounting in the manner that's most flexible and best suited to your specific needs: direct readout into punched cards, punched tape, or automatic typewriter.

Of course, you'll want complete cost figures. We're ready with those, too. Just call us. In Atlanta call TRinity 5-7467; Chicago: STate 2-4235; Kansas City: HArrison 1-6618; Rochester: HUbbard 2-2200; San Francisco: OXford 7-3630.

**Person-to-Person, Collect, and Special Service*

STROMBERG-CARLSON
A DIVISION OF **GENERAL DYNAMICS**

FLASHES AND PLUGS

PROFICIENT POOCH PUP-SITS. In Pueblo, Colo., a new sitter service development has come about. There is a dog named Tammy, mostly of hound ancestry, and come by at the local pound, that has turned out to be a pup-sitter.

Her owners, the A. F. Huckleberry family, have worked out an arrangement with Tammy. When the Huckleberry daughter, Mrs. William Klamm, telephones the Huckleberry home, the receiver is put to Tammy's ear. Mrs. Klamm whistles, Tammy understands, and heads with all speed for the Klamm house four blocks away, where she attends to the needs of Cindy, the pup.

Tammy's family pick her up after her pup-sitter chore has been finished.

•

LEGAL TWISTS ELSEWHERE. In London, England, a young man, arrested for making a phony telephone call to Scotland Yard, was sentenced to three months in jail. The charge was "maliciously consuming electricity belonging to the postmaster general."

A court at Widen, West Germany, recently decreed a suspended one-month prison sentence for 30-year-old Kurt Schneider for causing slight bodily harm over the telephone.

Reuters-WP reported that for two years, every night between two and three o'clock, Schneider anonymously telephoned a woman who had spurned his attentions. When she answered, he hung up.

Schneider explained to the court that his plan had been to reduce the woman to such a mental condition that she would agree to marry him, after all. The harrassment finally resulted in her going to see a psychiatrist.

•

A SURPRISE TALENT! When a flood washed out the railroad to a small city where he was scheduled to make an address, the late Vice President Charles G. Dawes telegraphed the chairman of the committee: "Cannot arrive on time. Wash-out on line."

He was nonplused to receive the forthcoming answer: "Never mind wash. Buy another shirt at our expense and come anyway." —*The Co-Operator*, Employers Casualty Co., Dallas, Tex.

•

MAN THE PUMPS! Under the category of calls she wishes she had not accepted is this gleaned from a Wisconsin bank's newsletter:

During a recent rainstorm, a Milwaukee bank received this telephone call:

"Have you got water in your basement?"
"No," was the answer. "Why do you ask?"
"I have a box on the safe deposit floor," the informant replied.
The fact that Dorothy Dusty, supervisor of telephone service, answered this call had no effect whatever on the watery conversation!

CHANGE OF ADDRESS

Please notify your local postmaster and the Circulation Department of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

May 21, 1960

CONTENTS

IN THE NATION'S CAPITAL 17
By Francis X. Welch

DIRECT DISTANCE DIALING REQUIRES A WELL-PLANNED PUBLIC EDUCATION PROGRAM 19
By R. H. Driftmier

SETTING MARKET AND SALES QUOTAS FOR TELEPHONE ANSWERING DEVICES 21
By Alexander I. Warrington

VNL . . . . BASIC TESTS, PART I 24
By Doug Plaskett

PLAN PBX VISITS 26
By Gilbert R. Brackett

THE PLANT MAN'S NOTEBOOK 30
By Ray Blain

CORNHUSKERS PAINT AN IMAGE OF UTILITIES' RESPONSIBILITY 34
By Helen Hardin

THE OPERATOR'S CORNER 38
By Mayme Workman

COURTS AND COMMISSIONS 42

TEN PILLARS OF ECONOMIC WISDOM 45

APPROVE 7 REA LOANS TOTALING $3,345,000 54

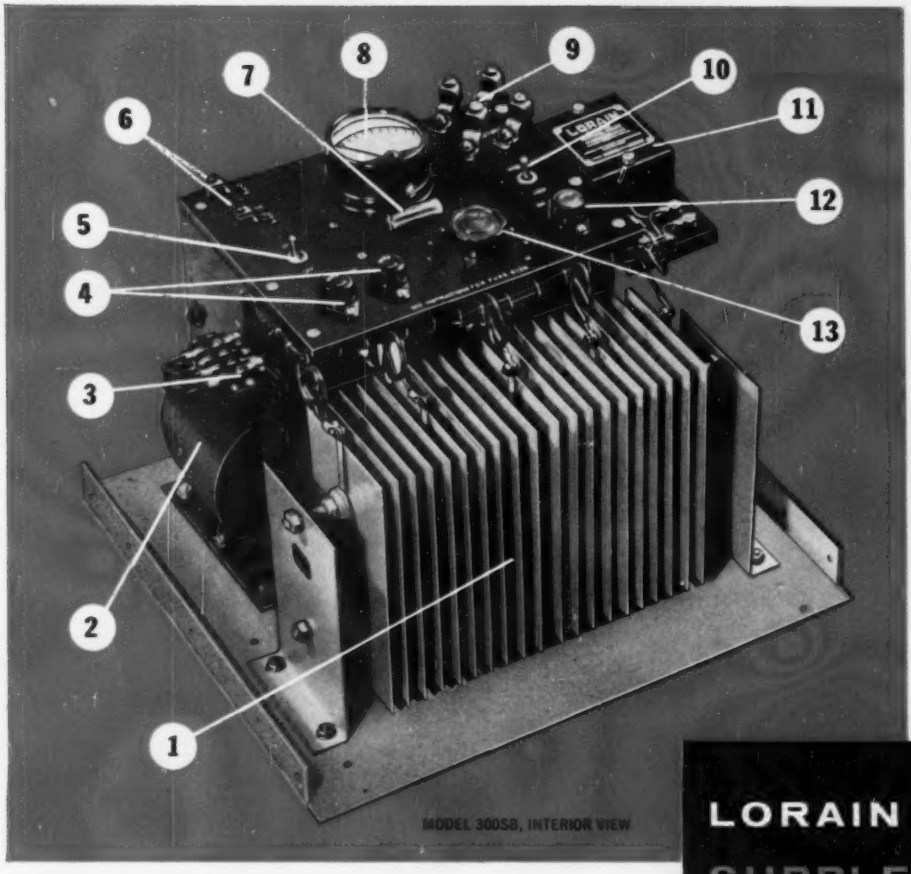
1960 CONVENTION CALENDAR 62

NEWS ON NEW PRODUCTS 70

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

VAC **Circulation Audited and Verified (direct from auditor to subscriber) By Verified Audit Circulation Co.**

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 608 S. Dearborn St., Chicago 5, Ill. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879. 30c per copy (except special issues—50c). Subscription $4.50, 1-year; $7.00, 2-years; $9.00, 3-years. Add $1.00 per year for postage to Canada and Pan American countries; $2.00 per year to Foreign countries. Telephone WAbash 2-2433.



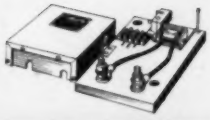
1. Selenium rectifier
2. Isolating transformer
3. Taps to adjust for A-C line voltage
4. A-C line fuses
5. On-off switch
6. A-C input terminals
7. Neon lamp to indicate tripping of overload relay
8. Output ammeter
9. D-C connections
10. Output range selector switch
11. Control relay, type FS1R
12. D-C load fuse
13. Tap switch

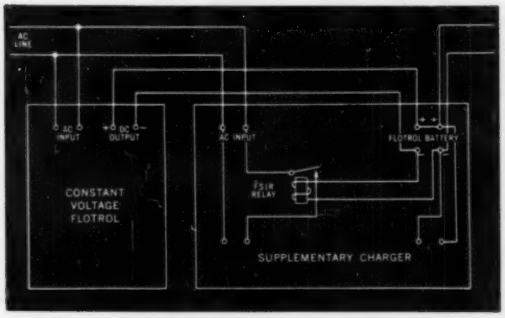
LORAIN FLOTROL SUPPLEMENTARY CHARGERS

For peak loads and growing plants... save money with "a Flotrol and a half"

Here is the low-cost answer to expanding loads that are taxing the capacity of your charger. A Lorain Supplementary Charger matched to your Flotrol as much as doubles its capacity at a fraction of the cost of a larger Flotrol. It is also used in new installations to get an "in-between-size" Flotrol and avoid paying for un-needed capacity. The Supplementary Unit delivers a constant current which is adjustable by a tap switch. Controlled by the master Flotrol, it provides a closely regulated output voltage. A control relay shuts the unit off when it is not needed. Proved in service since 1950. Thousands in use. Seven models, with output from 3 to 24 amps., 45-56 and 25 volts. Rack or wall mount. Write for Bulletin 171A.

FS1R Control Relay is mounted inside the unit and is wired as below. Externally mounted control relays (see right) are offered to simplify heavy wiring for the larger Flotrols.





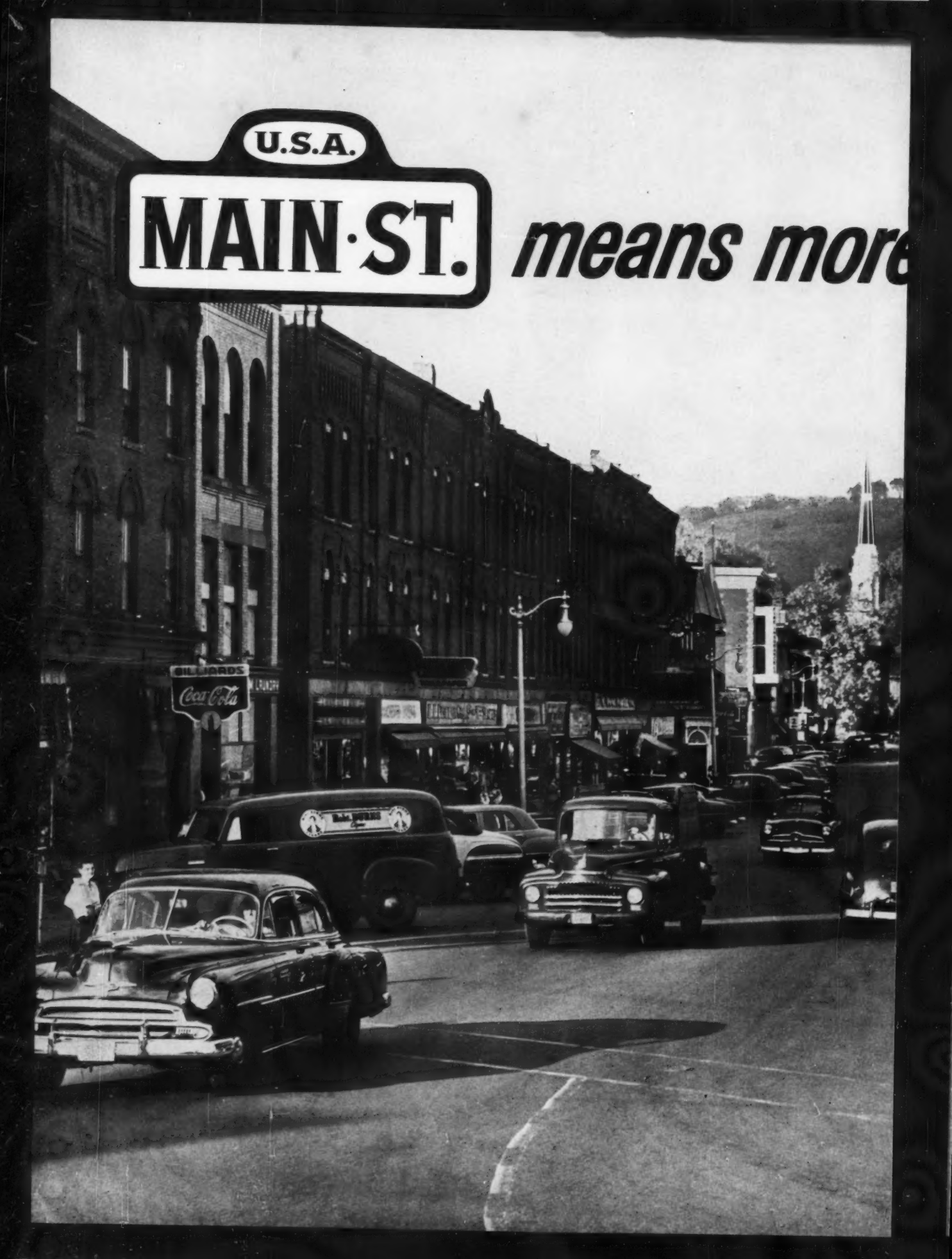
POWER EQUIPMENT FOR COMMUNICATIONS AND INDUSTRY

our equipment is sold through leading telephone distributors

FLOTROL SUB-CYCLE

LORAIN *Products Corporation*

1122 F Street Lorain, Ohio Phone: ATlantic 8-9191


U.S.A.
MAIN·ST.
means more
Coca-Cola

profits...

for telephone companies that sell extra services to business men, like...

Kellogg-K-1A1

In all 50 states, Main Streets are humming with activity—the kind that means *extra* revenue for alert telephone management. For today, busy people need a "stepped-up" telephone system—a multiple-service unit which increases efficiency and reduces overhead.

Kellogg's K-1A1 Key Telephone System offers every business, large and small, the cost-cutting, streamlined advantages of a multiple key telephone installation. A simple on-the-spot demonstration graphically illustrates its time and money-saving features.

K-1A1 is a system business men instantly recognize and accept . . . with all the features they want and need.

For independents, K-1A1 is another quality Kellogg instrument, tops in its field, that means extra revenue for you month after month.

Ask your Kellogg representative to give you all the details.

Kellogg Switchboard and Supply Company
6650 South Cicero Avenue, Chicago 38, Ill.
Communications Division of International Telephone and Telegraph Corporation.

KELLOGG
CHICAGO, ILLINOIS
Communications Division of IT&T

Regional Offices and Warehouses:

CALIFORNIA:
23 Broderick Road, Burlingame, California,
OXford 7-5780.

GEORGIA:
1594 Southland Circle, N. W., Atlanta 18, Ga.,
SYcamore 4-2441.

ILLINOIS:
4600 So. Tripp Ave., Chicago 32, Illinois,
CLiffside 4-4300.

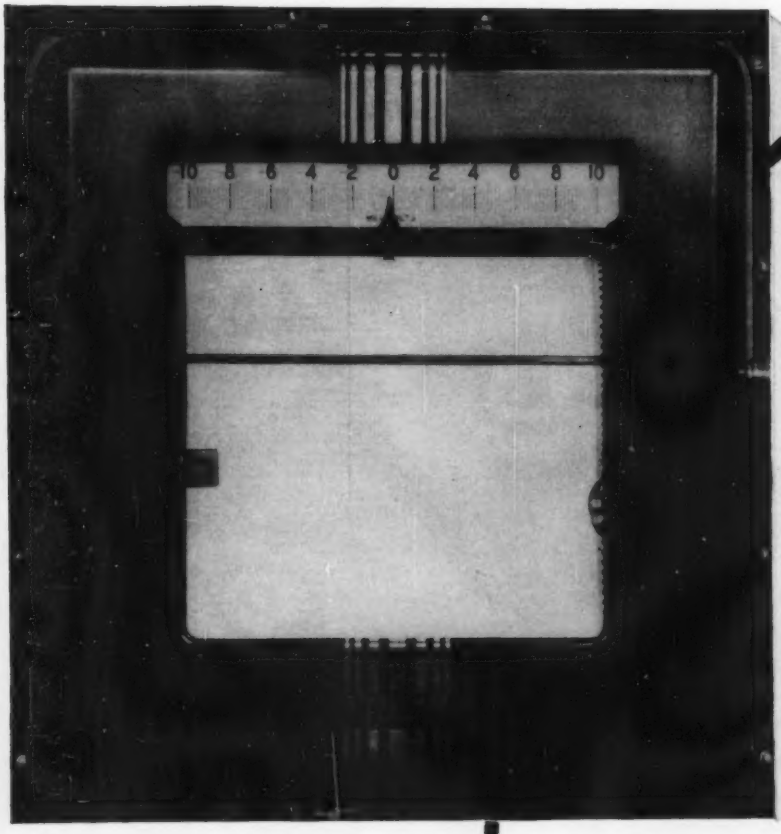
KANSAS:
7th & Sunshine Road, Kansas City 15, Kansas,
MAyfair 1-4418.

NEW YORK:
327 North West Street, Syracuse, N. Y.,
HArrison 2-9251.

TEXAS:
1359 Motor St., Dallas 7, Texas,
Riverside 7-5191.

EXPORT:
4600 So. Tripp Ave., Chicago 32, Illinois,
CLiffside 4-4300.

100% AUTOMATIC ASSURES *that all conductors in every length of Whitney Blake Telecable® leave the factory free from . . .*



- OPENS
- GROUNDS
- CROSSES
- SHORT CIRCUITS

All data including the resistance of each conductor is permanently recorded on strip charts.

Only the TELETESTER provides this complete inspection.

TESTING

WB WHITNEY BLAKE CO.

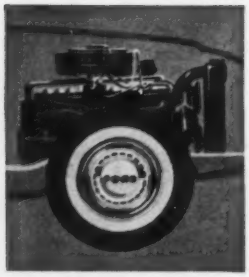
NEW HAVEN 14, CONNECTICUT
Telephone: CHestnut 8-5515 TWX: NH 84

RELIABILITY — A PRODUCT OF THE ADVANCED TESTING TECHNIQUE AT WHITNEY BLAKE.

The Whitney Blake Teletester

Completely new—Ford's Falcon pickup costs you less the day you buy and every day thereafter! Up to 30 miles on a gallon! Single-unit construction. Bolted-on front fenders for easy replacement! Lower oil costs, tire costs, all-around maintenance costs!

NEW Ford Falcon RANCHERO



All-new Six. Modern Short Stroke engine with plenty of turnpike power! There's 4,000 miles of driving between oil changes!

Big 6-foot box . . . nearly 8 feet of load length with tailgate flat! Load capacity is ample for most jobs. Loading height is a low 27 inches!

It looks like pure pleasure—and it is. But when it comes to saving money, Ford's new Falcon Ranchero is all business!

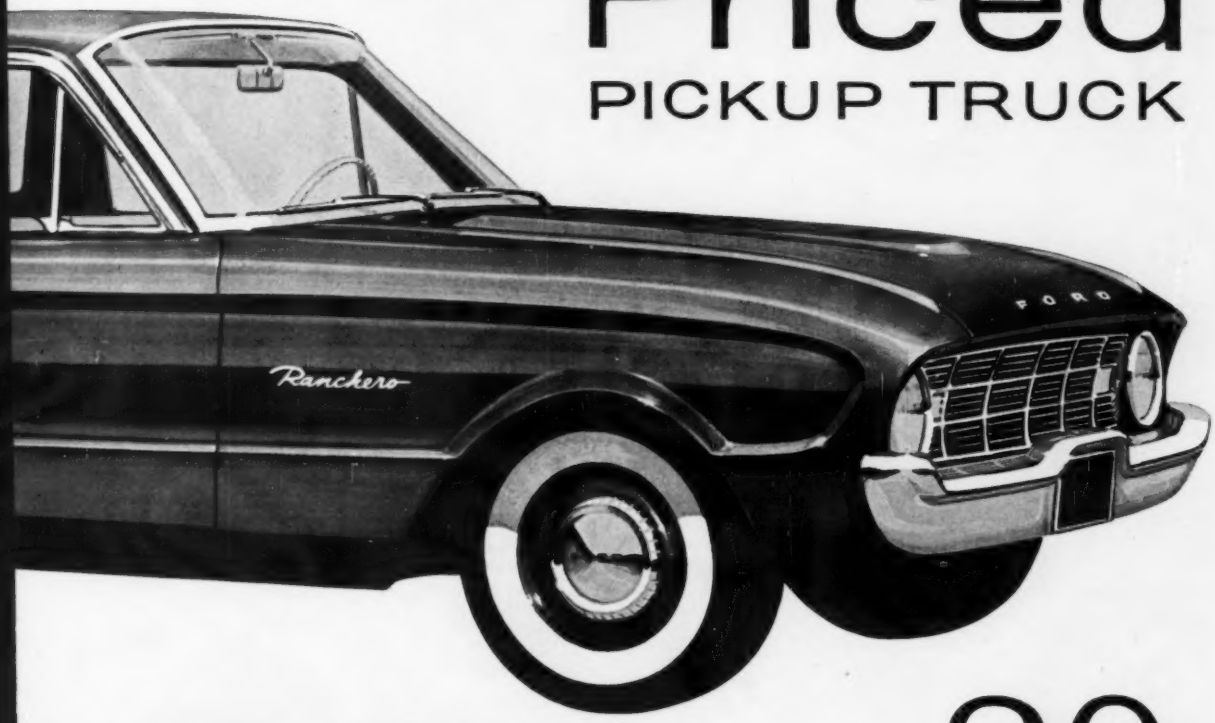
As a start, it's priced lower* than any other pickup in America. It gives you spectacular gas mileage—up to 30 miles on a single gallon, yet its new 90-horsepower Six is geared to handle a full-sized load.

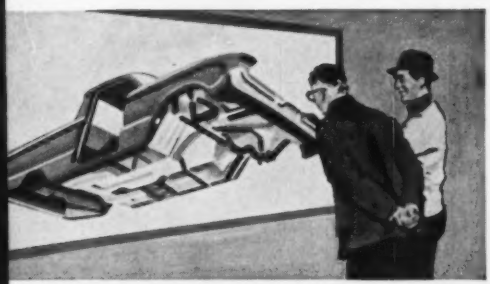
The Ranchero's solid single-unit construction, its bolted-on front fenders, and other low-cost replacement parts . . . all mean you'll save on maintenance costs! In its big 6-foot box there is room a-plenty for nearly any pickup job . . . and in its beautifully styled cab there is room for three in stretch-out comfort!

See your Ford Dealer and action-test the Falcon Ranchero—the new kind of pickup that's full-sized for work, over-size in comfort, but only half-size in costs!

*Based on latest available manufacturers' suggested retail delivered prices with comparable standard equipment.

Lowest Priced* PICKUP TRUCK





Single-unit construction . . . It's tighter, quieter, longer lasting. All main underbody structural members are heavily zinc-coated for greater durability . . . protects against rust and corrosion. Front fenders bolt on to cut maintenance costs!

up to 30 miles per gallon!

FORD TRUCKS COST LESS

OUR BEST BET IS A TRAILWAYS TOUR

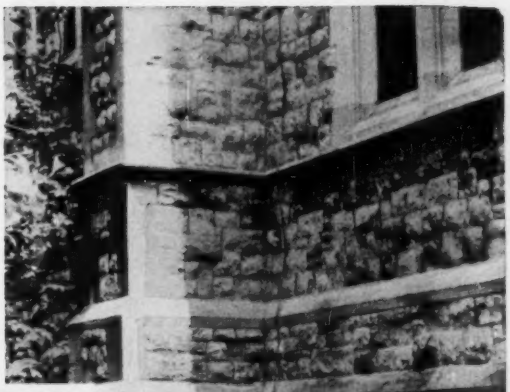
Let somebody else worry about the *connections!* A vacation really means getting away from it all. And when you turn over the travel details of your vacation to Trailways, everything is pre-arranged for you . . hotel accommodations . . sightseeing . . all transportation. So this year, whether your choice is an Individual Vacation or an Escorted Tour . . you'll get the *answer* to a dream vacation, when you *call* Trailways!

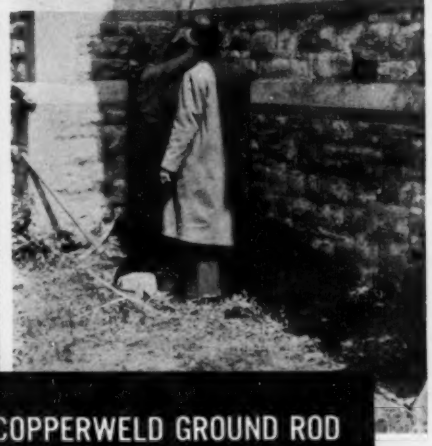
TRAILWAYS®
1012 14TH ST., N.W., WASHINGTON, D.C.
AND ALMOST ANY CITY, U.S.A.

"Easiest Travel on Earth"

"CHOOSE carefree CHARTERS . . . USE convenient PACKAGE EXPRESS"

Dug up in an old English churchyard after 25 years' service





—COPPERWELD GROUND ROD
still good for many
more years of use

Copperweld Ground Rods never die—they don't even fade away. They go right on protecting your overhead lines and equipment, year after year, after year.

A company in England, specializing in lightning protection, recently exhumed a Copperweld Ground Rod put into service in 1935 to protect St. Matthews Church near London. When originally installed, this ⅝" x 8-foot rod had a resistance reading of 10 ohms—and when dug up and examined, the rod was in perfect physical condition—ready for many more years of use.

For dependable, long-lasting grounds use Copperweld—the only ground rods with a thick copper covering inseparably molten-welded to a strong steel core. They provide stiffness for easy driving and rust resistance for long life. Copper-to-copper contacts throughout assure low resistance. For your protection, each rod is stamped "Copperweld."

COPPERWELD STEEL COMPANY
WIRE AND CABLE DIVISION *Glassport, Pa.*
For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, N.Y.

Copperweld®

ground rods

the only ground rods with the **Molten-Weld** →

This microphotograph of the Molten-Weld shows how the grains of copper and steel interlock to form a permanent, continuous weld.

new SPACE-MAKER* phone

fits anywhere in the home helps you sell more extensions

Only with AE's new Space-Maker phone can subscribers have a handy extension *anywhere in the home.* Here's why:

Only Space-Maker has a dial that rotates 360°...tilts up to 45°. At any point it locks in place. Only Space-Maker has a handset that locks in seven different positions. And Space-Maker saves space. It mounts on any vertical surface. Examples: bedroom wall, kitchen cabinet, side of workbench—any vertical surface.

It adds up to this: your subscriber can have an extension in the *most convenient* location...with both the dial and handset in the *most convenient* position.

Your extension sales multiply with the compact Space-Maker phone. That's because you offer subscribers more locations for extensions. More locations mean more revenue.

Order the phone that fits anywhere in the home...the new Space-Maker extension phone. It's available in 10 colors.

AUTOMATIC ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

*Space-Maker is a trademark of Automatic Electric Company

Free Promotion Kit! Includes commercials, posters, newspaper ad mat, stuffer, etc. For your free kit, write: Automatic Electric Sales Corporation, Northlake, Ill.

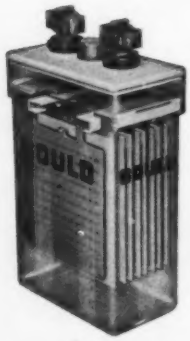
Now—Gould Stationary Batteries in Plastrite Jars withstand MORE HEAT THAN EVER WITHOUT DAMAGE!

They will not warp, bulge, or lose shape in the sun or extremely high room temperatures. The Plastrite Jars have 50% higher elongation characteristics, 15-30% higher resistance to heat distortion than other stationary battery jars.

Save space. Gould's new Stationary Batteries in Plastrite Jars save you 30-40% more floor space; this means you can increase your battery room capacity without increasing the room size. Lightweight Plastrite Jars have great impact resistance, are unharmed by normal handling and shipment.

Defy electrolyte seepage. New Silicone O-ring post seal expands under compression, prevents escape of electrolyte. New stronger posts assure full current carrying capacity. Improved element suspension eliminates cover breakage due to weight of battery element.

Gould Stationary Batteries in Plastrite Jars are available in Planté, Calcium, or Kathanode. Write for details today, or call your local Gould office listed under "Batteries—Industrial" in the Yellow Pages. Gould-National Batteries, Inc., Trenton 7, N.J. In Canada, write to Gould-National Batteries of Canada, Ltd., 1819 Yonge Street, Toronto, Ontario.



New Stationary Batteries in Plastrite Jars offer the same long life for which Gould has always been famous.

More Power to you from **GOULD**

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR
AND EDITOR, PUBLIC UTILITIES FORTNIGHTLY

Defense communications merged. House REA appropriation includes 80 million dollars for telephone loans. REA celebrates 25th anniversary. Bell *versus* Independent toll compensation problems receiving study by commissions in Ohio, Kentucky, Florida and Washington. Mills withdraws as FCC nominee over interest conflict.

EARLIER this year, it was reported in these columns that the Department of Defense was considering a new agency to control all long-distance communications of the military services. On May 12 this proposal became an accomplished fact as Defense Secretary Gates issued directives to get the unified setup started. It will be headed by an admiral or a general, yet to be designated, who will take his orders from the Defense Secretary through the Joint Chiefs of Staff.

The agency will absorb the existing global communications activities of the Army, Navy, and Air Force with the exception of those of a localized or highly specialized nature. For example, communications exempted from the merger order include the Navy's ship-to-shore and the Air Force's ground-air-ground systems that control tactical movements.

The new agency, whose headquarters are yet to be announced, will administer a merged communications system whose components now handle more than 63 million messages yearly. The existing, separate service networks now include 6,352,000 channel miles of leased wires and 489,000 of high-quality, long-range radio voice channels.

The unified system will take over 79 major relay stations scattered throughout the world which have an equipment investment of about 2 billion dollars and are manned by nearly 25,000 persons. Once the chief of the agency is appointed, the Pentagon said it would take about nine months to complete the merging of the separate communications systems.

The initial impact on telephone, telegraph, and other commercial communications companies, whose services are widely used by the Armed Forces, will probably not be very noticeable. In other words, the number of leased circuits and similar details will not change greatly. But the long-range organization of these government communications will be drawn into a tighter centralized control with which all participating communications companies must henceforth do business.

The Defense Department has officially announced that the unified system will function under the new central agency created on May 12—and that it will report directly to the Defense Secretary or through the Joint Chiefs of Staff. A Pentagon directive issued over a year ago set forth a requirement for such a centralized communications system and ordered that steps be taken to organize it. But the Army, Navy, and Air Force in turn opposed the idea. Officials of the three services submitted a series of counterproposals.

The Army, through the Signal Corps, is understood first to have suggested that existing military communications be left alone. Later the Signal Corps proposed using existing systems but having them administered under a single manager plan, such as now used for operating the Military Air Transport Service.

Air Force opposition is known to have stemmed from fears that the highly organized communications to and within the Strategic Air Command could be disrupted or delayed by any requirement to trunk operational instructions through a super, all-service system.

Navy opposition was based upon similar fears regarding communications between ships at sea and the commands.

The centralized system, as explained by Pentagon officials, is designed to meet some of these objections. As already stated, ship-to-shore communications for the Navy and ground-to-aircraft contact for the Air Force will be excluded, but the details will have to be worked out.

REA's Silver Anniversary

The Agriculture Appropriations Bill passed by the House on May 12 was pretty close to 4 billion dollars. Actually it was $3,937,943,500, which is closer to 4 billion dollars than most of us will get in this world. Of this amount the Rural Electrification Administration will get 200 million dollars to be broken down as follows: There will be 110 million dollars for new electrification loans during the coming fiscal year of 1961. There will be 80 million dollars for new rural telephone loans during the same period. There will be $9,632,000 for REA's own administration and housekeeping expenses.

These sums are all just about the same as requested in President Eisenhower's budget last January. In addition, however, the House Appropriations Committee added a 50-million-dollar contingency fund to the rural telephone program and another 50-million-dollar contingency fund to the rural electrification program. These contingency

funds were not contained in the President's budget request. They may be used, however, at the discretion of the Secretary of Agriculture (upon recommendation of the REA Administrator) when and if other funds appropriated are exhausted and provided the Secretary feels that such funds, or any part of them, are necessary.

It is important to bear all this in mind in view of the certain fact that during one-half of the coming fiscal year there will be a new President in the White House and in all probability a new REA Administrator—although not necessarily so. Whether the next White House occupant is a Republican or a Democrat might conceivably make a difference in the pace at which REA loans are made. Anyway you figure it, however, 200 million dollars—which is by no means a record-breaker for REA—is a good bit more than the tiny sum of $75,000 which President Franklin D. Roosevelt set aside a quarter of a century ago to bring REA into existence.

This brings to mind the fact that REA is celebrating its silver jubilee or 25th birthday, whatever you want to call it. More than a thousand borrower representatives, government officials, past and present REA employes, suppliers of electric equipment, and so forth, gathered in Washington on May 11 to celebrate the 25th anniversary. The patio out in back of the Agriculture Department was filled with exhibits and other items of REA's history, and resembled a county fair.

The visitors as well as the hired help had a good time recalling all or part of the 25 years since the day on May 11, 1935, when President Franklin D. Roosevelt called the REA into being. It does not seem to be generally realized that REA was not created by law—that is to say, a specific enactment of Congress. It was originally created by Executive Order of the President. He did this pursuant to the general powers voted to him under the antidepression-make-work legislation of that era. It was not until a year later that Congress passed the Norris-Rayburn Act which set up REA on a statutory basis of its own. However, this is merely a detail, and it is quite accurate to date REA from Roosevelt's Executive Order rather than from the day of the original REA statute.

President Eisenhower sent a message of congratulations "to all who have taken part in the program of the Rural Electrification Administration over the past 25 years." The President wrote: "In particular, I wish to salute the citizens who have assisted in the founding and operation of the fine local rural service organizations financed by the REA across the land."

Speaker of the House Rayburn of Texas addressed an overflow crowd at the Department of Commerce Auditorium, where the official observance took place. Co-author of the Rural Electrification Act of 1936, Rayburn called the REA program "one of the biggest lifts that farmers ever got." He recalled that farmers had gone through years of distress in the late twenties and early thirties and that the economy was at lowest ebb shortly before REA was created.

The Speaker observed that farmers on rural lines have bought more than 25 billion dollars in manufactured electrical products since REA started. "That's 25 billion dollars in 25 years," he said. "REA has added that much to the economy of the country." Noting that "it is now as convenient to live on 90 per cent of the farms in this country as on a paved street in the city," Rayburn congratulated his audience for "the businesslike way in which this business has been conducted."

The other guest speaker, Senator George D. Aiken (R., Vt.), called the Executive Order setting up REA "one of the most momentous documents ever signed by a President of the United States. It predestined a new era of development for our country." Senator Aiken also recalled the dark days of the mid-thirties, saying that "America had to have a miracle and REA was born to meet that need."

"The infant prodigy was a little wobbly on its feet at first," he said. "The $75,000 which President Roosevelt appropriated to start the program would hardly buy a nursing bottle for

(Continued on page 59)

The Advertising Committee of the United States Independent Telephone Association met in Chicago on May 5 and 6. The meeting's primary purpose was to consider the production of an industry motion picture which, when completed, will be made available to member companies for showing in their local areas. Several documentary films were viewed by the committee, and a number of proposals were taken under consideration.

The committee members also approved suggested advertising material for local use, and submitted suggestions for inclusion in the 1960 national advertising program consisting of a series of seven full-page advertisements in the *Saturday Evening Post*.

Photographed at the committee meeting are, left to right, N. E. Jacobs of the Telephone Advertising Institute (TAI); R. F. Smith and R. C. Reno, guests of the committee; J. F. McHenry of Jefferson City, Mo.; P. H. Kaufman of Bellevue, O.; R. L. Post of Brownwood, Tex.; Chairman C. C. Pearce of Riceville, Ia.; Homer Bennett of TAI; G. P. Norton of New York City; L. D. Densmore of Lincoln, Neb.; Phil Rouda of TAI, and L. F. Roberts, USITA director of information.

Also in attendance, but not present when the picture was taken, were H. A. Barnhart of Rochester, Ind., and A. F. Monroe, vice president of the J. M. Mathes advertising agency of New York City.

REQUIRES A WELL-PLANNED PUBLIC EDUCATION PROGRAM

By R. H. DRIFTMIER*

INTRODUCTION into an area of a new telephone service such as Direct Distance Dialing (DDD) requires a well-planned program of public education to assure its success.

In the two-and-a-half years since DDD was first introduced in its territory, Southern Bell Telephone & Telegraph Co. has been using just such a program.

The Southern Bell exchanges which have already completed DDD "cut-overs"—and those yet to come—vary greatly in size. But the same basic public relations approach is used generally, since the idea is one easily adaptable for use in a small community or a large metropolitan area.

Devising and carrying forward the information and advertising program of a DDD cut-over is the responsibility of the individual states and exchanges concerned. Company headquarters provides coordination.

Committee Is Key Unit

The key unit is a DDD committee organized in the exchanges in which DDD is to be introduced. This committee consists of representatives of all departments. It formulates over-all plans, technical, educational, informational and promotional.

Assisting in the detailed planning and execution of the program is the local interdepartmental Public Relations Committee and also, in some cases, a specially created local publicity and education sub-committee.

Southern Bell headquarters provides assistance wherever appropriate and furnishes samples of the best public relations ideas used elsewhere.

Three-Phase Program

From a public relations standpoint, there are three important "time phases" of a DDD conversion program.

First, there are the preliminary announcements and education concerning DDD and the conversion date. These activities—programmed separately for employes and the public—usually begin from eight to 12 months prior to the conversion date.

The second phase, or concentrated education period, begins about two months or less before the cut-over. During this time, promotional and educational efforts are intensified and use is made of many medias.

After the conversion, the follow-through education phase begins and continues as long as necessary. During this time the company analyzes the initial results and effectiveness of the program and publishes any additional material necessary for the over-all introduction.

Local conditions, size of the exchange, public reaction and many other factors determine how elaborate and comprehensive a DDD public relations program is used. In some of the larger cities, all available promotional and educational media are used. In small exchanges, the quantity of material is less and the techniques of using them may be a little different. The company attempts to organize each separate program so that it will be flexible enough to meet the requirements of local conditions.

Media, Methods, and Material

What are some of the media, methods and materials Southern Bell uses to carry out these DDD public relations programs? There are many—some for employes, others for the public.

Properly informed employes are an invaluable and influential force in taking the DDD story to the public, therefore, the "employe information" program is begun prior to the public education phase.

The job of educating the public is more comprehensive since the level of its understanding and enthusiasm for DDD can mean the difference between average and excellent usage of the service.

Some areas key their public education material to two groups—general customers and heavy-toll users. The latter group receives special attention, usually through personal contacts made by company representatives.

Throughout the two time-phases prior to a DDD conversion, interviews are held with key community leaders and selected local groups are invited in for central office visits. Scheduled

---

*Mr. Driftmier is Information Assistant in the Public Relations Department of Southern Bell Telephone & Telegraph Co., Atlanta, Ga.

appearances are made before civic, school, women's and other groups with talks, lecture-demonstrations, movies and slide film presentations.

Mass education media are allotted a considerable portion of the budget. As in the case of "2-5" cut-overs, paid media advertising is the most expensive of these and is employed in the latter stages of the DDD program. Company media, such as the monthly bill insert, truck and telephone booth signs and news publicity are used appropriately throughout the entire program.

Newspaper, radio and television advertising and news and feature articles are concentrated during a period of two months to two weeks preceding the conversion.

To illustrate Southern Bell's three-phase public relations program, three DDD conversions have been selected as typical examples of what has been done in exchanges of varying size. These exchanges are Waycross, Ga.; Chattanooga, Tenn.; and Miami, Fla. Waycross has approximately 5,800 main stations; Chattanooga, 75,800; and Miami, 268,100.

A look at the public relations aspects of these DDD conversions points out the various media and methods used to inform employes and the public. It also gives a general idea of the timing involved in carrying out the program.

Dial, DDD Conversion Combined

Waycross was the first exchange in Southern Bell to get DDD service, which was scheduled simultaneously with the conversion from manual to dial. Public relations material included information on both services.

The first public announcement was made approximately 10 months in advance of the conversion date. But even before that, each employe had received a special question-and-answer pamphlet, a general information bulletin, a DDD booklet and an illustrated informational pamphlet.

After the program moved into the preliminary announcement and public education phase, additional presentations were made to employes. A one-day familiarization session on the public relations aspects of the conversion program was conducted for management employes. Management of all departments received additional training on DDD procedures and operations.

Lecture-demonstrations and movies on the cut-over were also shown to employes during this initial period.

Meanwhile, advertisements and articles in the local newspapers had begun to herald the coming of dial and DDD service to Waycross. An announcement advertisement kicked-off the public education program. Later, periodic advertisements included a directory closing ad, a special ad designed to insure that all instruments had been properly modified, and an ad announcing the visit of the "Flying Squadron" — specially trained telephone representatives who visit customers to instruct them in the proper use of the new dial and DDD facilities.

Jacksonville (Fla.) Public Relations Supervisor Bob Rogers places a DDD call to Fairbanks, Alaska, for Miss Sandra Freeman, Florida's Citrus Queen (right). The call was made on a local television program emceed by Professor "Backwards" (left) and Announcer Virginia Atter.

Publicity Intensified

Localized editions of the *Bell Tel News*, the company's bill insert publication, also publicized the conversion. Lecture-demonstrations, movies and a DDD flip chart presentation were shown to various civic and community groups, and many of these organizations as well as press representatives made visits to the new central office building.

About two months prior to the Dec. 1 cut-over, publicity efforts were intensified. A dial lecture-demonstration and a DDD slide film presentation were shown to elementary and high school students. Letters announcing an installer-repairman's visit were mailed to all customers.

The "Flying Squadron" called on customers and distributed Blue Books and instructional booklets. Company truck and paystation cards were put into use. A display at the Waycross Fair featured dial service and DDD and local community leaders were invited to a company-sponsored conversion dinner.

After the conversion, follow-up action was taken in the form of promotional and informative ads, radio spot announcements, newspaper articles and posters on company trucks and in paystations. Activities reached a climax with a family night and open house a month after the conversion.

Chattanooga Goes DDD

In Chattanooga, an intensive program of employe information on DDD was started eight months prior to the DDD conversion.

All employes in the Chattanooga district were given copies of a DDD instructional booklet and were shown the then-new Southern Bell DDD film, "Dial the Miles." They also saw the DDD lecture-demonstration and were given question-and-answer sheets on DDD. "News Flash" bulletins were sent to all employes just before and after the conversion, providing last-minute information and a report on the cut-over's success.

The public education phase of the program began with a Press Dinner in January, 1959. At this dinner, initial news releases on the Apr. 5 conversion were given to representatives from newspapers, radio and television. "Dial the Miles" was shown, along with the DDD lecture-demonstration. Favorable news, feature and editorial comment resulted from this dinner. Pertinent news releases were scheduled up to and after the conversion.

The paid-media campaign began on Mar. 30. Advertisements were scheduled for the weekly and daily newspapers in Chattanooga and three surrounding communities. Spot announcements on radio ran four weeks; on television, 13

(Continued on page 56)

Setting Market and Sales Quotas for Telephone Answering Devices

By ALEXANDER I. WARRINGTON

A SERIES of articles recently has been published in TELEPHONY dealing with the potential markets for telephone answering devices in the service industries. (The service industries, with a few exceptions, generally include all economic activities, and most of the social aspects related thereto, which cannot be classified as manufacturing or processing.)

With the numerous industries, institutions, and various types of establishments that enter into the many categories of service industries, it can easily be imagined that even a well-trained telephone market analyst might become bewildered in deciding where to begin in setting up specific quotas for telephone answering instruments.

In an effort to clarify what might be termed a murky atmosphere, this article has been designed to point the way to an orderly process for setting up reasonable quotas for marketing telephone answering instruments and similar types of installations.

We have taken as an example the category of "Church and Similar Offices," and we will endeavor to suggest how potential market sales quotas may be set up for this particular group, and which may be followed for service organizations in other categories listed at the close of this article.

Have Need for Devices

Aside from the ever-increasing number of churches and similar institutions, there has been, and continues to be, a virtual multiplication of services offered by religious bodies and denominations. This has brought about a tremendous upsurge in telephone calls to the average church office.

Most of these incoming calls require the personal attention of the pastor or spiritual overseer but it can hardly be expected that he will be within the reach of the telephone on a 24-hour basis.

The pastor spends certain hours in the church for religious services, and he is also expected to visit the sick, be present at functions of different types, and perform rituals for the burial of the dead. He must also spend many hours in reflection, meditation and the preparation of sermons and addresses.

Alexander I. Warrington operates the Gulf States Research Agency, LSU Field House, P. O. Drawer 8547, University Station, Baton Rouge 3, La. This agency renders general and specific market research, sales promotional campaigns and other related services.

Needless Loss of Calls

In the meantime, numerous telephone calls are made to arrange weddings, funerals, and a host of other things. The person who places a call and fails to have the telephone answered is apt to regard this failure as a major tragedy.

And such tragedies are completely needless now that telephone answering instruments are available on terms that are self-liquidating, and actually a means of producing additional revenue, a fact which will become apparent with a little thought as to what a telephone answering instrument can do for a church office.

A review of *Table 1* indicates that church and similar offices make up from 3.9 per cent to 18.4 per cent of *all*

Table 1—Potential Markets for Answering Instruments in Church and Similar Offices, 1960

Region	Estimated number of answering instruments which may be absorbed in:			Total number of all service establishments	Column 4 as a percentage of Column 5 *
	Primary & secondary markets	Tertiary & remaining markets	Total of 2 and 3		
1	2	3	4	5	6
I. New England	5,000	3,000	8,000	204,400	3.9
II. Middle Atlantic	16,600	11,100	27,700	685,600	4.0
III. East North Central	20,000	13,400	33,400	603,600	5.4
IV. West North Central	15,500	10,300	25,800	305,200	8.4
V. South Atlantic	23,800	15,600	39,400	365,600	10.7
VI. East South Central	15,500	10,400	25,900	140,400	18.4
VII. West South Central	14,500	9,600	24,100	294,800	8.1
VIII. Mountain	3,900	2,700	6,600	132,000	5.0
IX. Pacific	5,100	3,300	8,400	409,200	2.0
Contiguous U.S.A.**	119,900	79,400	199,300	3,140,800	6.3

*The lower percentages in Column 6 reflect a higher number of service units and service, in general.

**Hawaii and Alaska are not included.

potential service units and establishments. Therefore, it would be very wise to select church and similar offices as the first group to be considered in sales programs.

Table 1 and subsequent tables account for all churches, Christian and non-Christian.

We will now present tables showing the potential markets for telephone answering instruments in church and similar offices. *Tables 2* through *10* indicate the potential markets in the states of the various geographical sections. *Table 11* is a recapitulation and summary, suggesting sales quotas for telephone answering devices in the church and similar offices.

In order to explain the figures given in *Tables 2* through *10*, the following references will be made to *Table 2* for Region I — New England. These references will serve to explain the footnotes in each of the following tables.

The quotas which have been suggested in *Table 2* should be weighed by this important observation. The church

Table 2. Region I—New England. Potential Markets for Answering Instruments in Church and Similar Offices, 1960

Region I	Estimated Number of Answering Instruments Which May be Absorbed in:			Total Number of All Service Establishments	Column 4 as a Percentage of Column 5
	Primary & Secondary Markets	Tertiary & Remaining Markets	Total of 2 and 3		
1	2	3	4	5	6
New England	*5,000*	*3,000*	*8,000*	*204,400*	*3.9*
Me.	800	500	1,300	21,200	6.1
N. H.	500	200	700	16,400	4.2
Ver.	400	300	700	8,000	8.7
Mass.	2,000	1,200	3,200	98,400	3.2
R. I.	300	200	500	18,400	2.7
Conn.	1,000	600	1,600	42,000	3.8

Explanation of Table:

The information contained in this table is based on the latest available U.S. Census data and adjusted for 1960. The adjustments have leaned heavily toward conservative figures so as to avoid the setting up of quotas impossible of attainment.

The local analyst will adjust figures in Columns 2, 3, and 4 on the basis of native knowledge, and telephone directory information, particularly the Yellow Pages. Further adjustments can be made for future years.

Close to 100 per cent for church and similar offices shown in Column 2 and 40 to 60 per cent for church and similar offices shown in Column 3 would be reasonable quotas for telephone answering devices.

Table 3. Region II—Middle Atlantic. Potential Markets for Answering Instruments in Church and Similar Offices, 1960

Region II	Estimated Number of Answering Instruments Which May be Absorbed in:			Total Number of All Service Establishments	Column 4 as a Percentage of Column 5
	Primary & Secondary Markets	Tertiary & Remaining Markets	Total of 2 and 3		
1	2	3	4	5	6
Middle Atlantic	*16,600*	*11,100*	*27,700*	*685,600*	*4.0*
N. Y.	6,300	4,200	10,500	368,800	2.8
N. J.	2,200	1,500	3,700	109,200	3.3
Pa.	8,100	5,400	13,500	207,600	6.5

A reasonable quota is believed to be: 14,100 answering instruments in the urban sector, and 7,500 in the rural sector.

Table 4. Region III—East North Central. Potential Markets for Answering Instruments in Church and Similar Offices, 1960

Region III	Estimated Number of Answering Instruments Which May be Absorbed in:			Total Number of All Service Establishments	Column 4 as a Percentage of Column 5
	Primary & Secondary Markets	Tertiary & Remaining Markets	Total of 2 and 3		
1	2	3	4	5	6
East North Central	*20,000*	*13,400*	*33,400*	*603,600*	*5.4*
Ohio	5,300	3,600	8,900	166,400	5.3
Ind.	3,600	2,400	6,000	66,800	8.9
Ill.	5,100	3,400	8,500	187,200	4.5
Mich.	3,200	2,200	5,400	118,800	4.5
Wis.	2,800	1,800	4,600	64,400	7.1

The urban market is believed to be capable of absorbing 11,400 telephone answering instruments and the rural market, 14,600.

Table 5. Region IV—West North Central. Potential Markets for Answering Instruments in Church and Similar Offices, 1960

Region IV	Estimated Number of Answering Instruments Which May be Absorbed in:			Total Number of All Service Establishments	Column 4 as a Percentage of Column 5
	Primary & Secondary Markets	Tertiary & Remaining Markets	Total of 2 and 3		
1	2	3	4	5	6
West North Central	*15,500*	*10,300*	*25,800*	*305,200*	*8.4*
Minn.	2,900	1,900	4,800	62,400	7.7
Iowa	2,700	1,900	4,600	56,000	8.2
Mo.	3,600	2,400	6,000	87,200	6.8
N. D.	1,300	800	2,100	11,200	18.7
S. D.	1,200	700	1,900	13,200	14.3
Neb.	1,600	1,100	2,700	30,800	8.7
Kan.	2,200	1,500	3,700	44,400	8.3

The urban market is believed to be capable of absorbing 5,200 telephone answering devices and the rural market, 15,000.

Table 6. Region V—South Atlantic. Potential Markets for Answering Instruments in Church and Similar Offices, 1960

Region V	Estimated Number of Answering Instruments Which May be Absorbed in:			Total Number of All Service Establishments	Column 4 as a Percentage of Column 5
	Primary & Secondary Markets	Tertiary & Remaining Markets	Total of 2 and 3		
1	2	3	4	5	6
South Atlantic	*23,800*	*15,600*	*39,400*	*365,600*	*10.7*
Del.	300	100	400	7,600	5.2
Md.	1,500	900	2,400	42,400	5.6
D. of C.	300	200	500	19,200	2.6
Va.	3,600	2,500	6,100	47,600	12.8
W. Va.	2,400	1,500	3,900	25,200	15.4
N. C.	4,800	3,200	8,000	56,800	14.0
S. C.	2,600	1,700	4,300	25,600	16.7
Ga.	5,900	3,900	9,800	48,400	20.2
Fla.	2,400	1,600	4,000	92,800	4.3

It is believed that the urban market is capable of absorbing 8,000 telephone answering instruments, and the rural market, 30,000.

Table 7—Region VI—East South Central. Potential Markets for Answering Instruments in Church and Similar Offices, 1960

Region VI	Estimated Number of Answering Instruments Which May be Absorbed in:			Total Number of All Service Establishments	Column 4 as a Percentage of Column 5
	Primary & Secondary Markets	Tertiary & Remaining Markets	Total of 2 and 3		
1	2	3	4	5	6
East South Central	*15,500*	*10,400*	*25,900*	*140,400*	*18.4*
Ky.	3,200	2,100	5,300	39,200	13.5
Tenn.	3,700	2,500	6,200	44,400	13.9
Ala.	4,800	3,200	8,000	35,600	22.4
Miss.	3,800	2,600	6,400	21,200	30.1

The urban market appears capable of absorbing 4,300 telephone answering instruments, and the rural market, 15,900.

Table 8. Region VII—West South Central. Potential Markets for Answering Instruments in Church and Similar Offices, 1960

Region VII	Estimated Number of Answering Instruments Which May be Absorbed in:			Total Number of All Service Establishments	Column 4 as a Percentage of Column 5
	Primary & Secondary Markets	Tertiary & Remaining Markets	Total of 2 and 3		
1	2	3	4	5	6
West South Central	*14,500*	*9,600*	*24,100*	*294,800*	*8.1*
Ark.	3,000	2,100	5,100	28,400	17.9
La.	2,300	1,500	3,800	40,000	9.5
Okla.	2,400	1,600	4,000	50,800	7.8
Tex.	6,800	4,400	11,200	175,600	6.3

The urban market appears to be capable of absorbing 5,400 telephone answering instruments, and the rural market, 13,500.

Table 9. Region VIII—Mountain. Potential Markets for Answering Instruments in Church and Similar Offices, 1960

Region VIII	Estimated Number of Answering Instruments Which May be Absorbed in:			Total Number of All Service Establishments	Column 4 as a Percentage of Column 5
	Primary & Secondary Markets	Tertiary & Remaining Markets	Total of 2 and 3		
1	2	3	4	5	6
Mountain	*3,900*	*2,700*	*6,600*	*132,000*	*5.0*
Mont.	700	400	1,100	14,400	7.6
Ida.	500	400	900	12,000	7.5
Wyo.	200	200	400	9,200	4.3
Colo.	1,000	600	1,600	36,000	4.4
N. Mex.	600	400	1,000	16,800	5.9
Ariz.	400	300	700	22,400	3.1
Utah	400	300	700	13,600	5.1
Nev.	100	100	200	7,600	2.6

In the urban areas it appears that 1,700 telephone answering instruments could be absorbed, and in the rural, 3,400.

Table 10. Region IX—Pacific. Potential Markets for Answering Instruments in Church and Similar Offices, 1960

Region IX	Estimated Number of Answering Instruments Which May be Absorbed in:			Total Number of All Service Establishments	Column 4 as a Percentage of Column 5
	Primary & Secondary Markets	Tertiary & Remaining Markets	Total of 2 and 3		
1	2	3	4	5	6
Pacific	*5,100*	*3,300*	*8,400*	*409,200*	*2.0*
Wash.	1,300	800	2,100	57,600	3.6
Ore.	900	500	1,400	40,000	3.5
Cal.	2,900	2,000	4,900	311,600	1.5

The urban market appears capable of absorbing 3,900 telephone answering instruments, and the rural market, 2,700.

and similar offices are just about half urban and half rural. It would be very difficult to arrive at anything very useful in trying to generalize as to where the need is more urgent with respect to the urban and rural markets for telephone answering instruments. There is, of course, a difference between urban and rural markets which calls for different techniques and sales strategies that must be attuned to rural and urban church and similar types of offices.

The New England states follow this order with respect to total number of church and similar types of offices: Massachusetts, 3,200; Connecticut, 1,600; Maine, 1,300; New Hampshire, 700; Vermont, 700, and Rhode Island, 500.

Once the word gets around what telephone answering instruments are doing for religious bodies and denominations, it is almost certain that there will be a waiting list for this type of installation.

The number of telephone answering devices which can be marketed in church and similar offices for New England as a whole are believed to be: 3,200 in the urban sector, and 3,100 in the rural sector.

There is a great opportunity for rendering a substantial service to the church offices throughout the nation which are most urgently in need of the benefits that can accrue from telephone answering instruments.

Aside from the potentials and quotas that have been indicated in this series of articles for church and similar offices, the analyst can look at the tables and get a clue as to what can be done in the remaining service industries.

* * * *

The more than three million service units shown in this and previous articles published in TELEPHONY give us some idea of how phenomenally this segment of our economy has been growing and continues to expand. It is challenging to the most astute market research expert to set up policies for dealing with a market that seems to be lacking in boundary lines. Recently, a man trying to survey the situation with respect to services between New Orleans and Baton Rouge, and also the metropolitan areas, made this remark: "It's like trying to count fence posts while riding on a train going 60 miles per hour."

Actually, it is something like that because no matter how thorough and dedicated the analyst may be, something will always be left out. For example, the service of baby sitters has not been included in the three million service units. Another service establishment, or type of service, that has not been counted is made up of all levels of government which actually is the most basic type of service.

The reason for making statements of

(Continued on page 51)

Table 11—Suggested Quotas for Telephone Answering Instruments in Church and Similar Offices, by Geographic Regions, 1960

Region	Suggested Number of Telephone Answering Instruments in		Total of Columns 2 and 3	Total Number of Service Establishments (All Categories)	Column 4 as a Percentage of Column 5
	Urban Area	Rural Area			
1	2	3	4	5	6
United States*	57,200	78,700	135,900	3,140,800	4.3
I. New England	3,200	3,100	6,300	204,400	3.0
II. Middle Atlantic	14,100	7,500	21,600	685,600	3.1
III. East North Central	11,400	14,600	26,000	603,600	4.2
IV. West North Central	5,200	15,000	20,200	305,200	6.6
V. South Atlantic	8,000	3,000	11,000	365,600	3.0
VI. East South Central	4,300	15,900	20,200	140,400	14.3
VII. West South Central	5,400	13,500	18,900	294,800	6.4
VIII. Mountain	1,700	3,400	5,100	132,000	3.8
IX. Pacific	3,900	2,700	6,600	409,200	1.6

*Does not include Hawaii and Alaska.

VNL . . . . Basic Tests

Part 1. How to test line facilities in preparation for via net loss operation

By DOUG PLASKETT*

THE THEORY and advantages of country-wide Via Net Loss (VNL) telephone operation have been discussed in TELEPHONY in the past. If you feel it's time to pick up a screw driver and voltohmyst and begin work, then this article will describe the methods of making the required tests.

VNL has been described as the lowest loss at which a facility (cable, carrier, etc.) may be operated as an intertoll trunk without objectionable interference from echo and singing. This, of course, demands high quality, well engineered and balanced circuits.

A series of transmission tests is made on the circuits to determine how good they are and to reveal transmission weaknesses. While there are often several ways that a test can be made, and different engineers have their own methods, the end-result is invariably the same. The tests described in these articles have been selected as a result of the writer's experience, and because they present a good combination of simplicity and accuracy.

TNL versus VNL

Terminal Net Loss (TNL) design uses a 2 db switching pad at each end of the circuit. This pad is removed when the circuit is connected to another intertoll trunk and is switched in when the trunk is connected to a local terminal. If the connecting terminal trunk is fairly distant and has a loss of about 4 or 5 db, the S pad adds an additional 2 db for a total loss of about 7 db. A nearby, low-loss trunk could have less than half that amount of loss. The nearby subscribers enjoy good transmission and the distant majority has to put up with a poorer grade of telephone service.

With VNL, the effect of the "S" pad is still necessary to provide a safeguard against echo and singing, but each connecting trunk is designed to offer approximately 2 db of loss, regardless of its length (See *Fig. 1*). Low-loss connections, such as the operator's telephone circuit, will require a fixed 2 db. pad wired into the telephone circuit. Toll trunk circuits require 2 db. fixed pads to insure a minimum loss of 2 db. when a local subscriber is connected to a trunk. Longer circuits will require repeaters to bring their net loss up to the transmission design engineers value. If the VNL + 2 db net loss is calculated at 3 db and it is actually 7 db, a repeater gain of 4 db will be required. Negative impedance repeaters are being used to economically provide this relatively small gain.

Careful planning and coordination are required at this point to get the project started and to keep it progressively working towards its ultimate completion. Apart from the design engineering, there are three general responsibilities that should be assigned to appropriate technical personnel. One technician should be responsible for testing, another for circuit order wiring and a third should look after central office equipment installation and acceptance. These people should have ready access to engineering supervision. Ideally, the equipment should be installed and accepted in time for the circuit order personnel to wire it into the VNL designed circuits.

While this is being done, the transmission tester is working on the basic line facilities. When the basic facilities testing is completed, the circuit order work should also be completed and the new circuits ready to be cut into the approved line facilities. The transmission tester can then continue with overall tests and tests through switched connections. These tests will be described in Part 2 of this article.

A general guide to the work opera-

*Mr. Plaskett is with the Bell Telephone Co. of Canada at Kitchener, Ontario. For 13 years, he has worked in construction, installation and repair departments. Before working on signaling developments, he was responsible for voice transmission maintenance. During this time he was involved in two cuts to VNL.

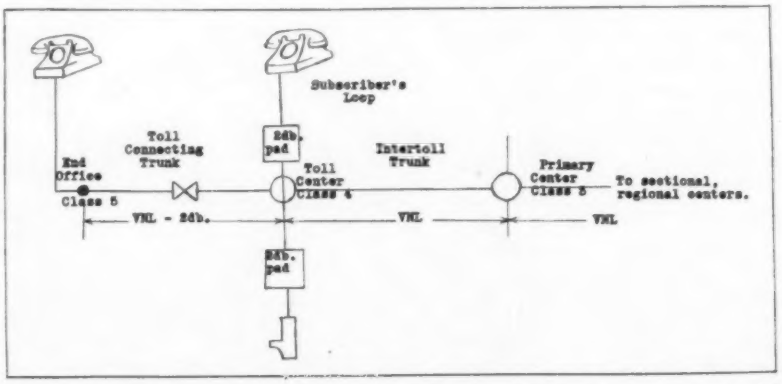


Fig. 1. For VNL operation, all circuits terminating into a Class 4 office should have 2 to 4 db loss.

tions sequence is given in the following outline:

VNL WORK OPERATION SEQUENCE.

(1) Meet with all personnel associated with the program and outline the job scope and work operations timing and sequence. Assign personnel to the following job responsibilities.

Transmission Testing.

(1) List all trunks to be tested. These will be trunks that "home" on the central office and connect to intertoll facilities such as Toll Switching, Recording (operator "0"), Operator Office trunks, etc. It is assumed the intertoll trunks are already good quality, properly balanced circuits. Minor changes such as elimination of S pad operation and repeater gain adjustments will be required, but such work should not be done until the connecting trunks are considered ready.

(2) List test equipment required. Test sets will be discussed in detail later. Test hybrid coils and four-wire terminating sets can be spare bay mounted equipment wired to test jacks.

(3) Make tests on the basic line facilities. Tests should be made at the control office, looking towards the end office.

(4) The final over-all tests are made after the VNL designed circuits are cut onto the tested and approved line facilities.

(5) Strap Network Building Out (NBO) condensers of all four-wire terminating sets and check terminal balance.

Circuit Order Assignment.

(1) Check all equipment cards for proper equipment. Equipment cards drawn in a block schematic form with the equipment number, bay number, frame location and print number in their appropriate blocks are considered better than an equipment list. The schematic layout of the record suggests logical steps a tester might take in isolating a trouble. Since all of the equipment cards are revised during the VNL cut-over, this is a good time to change to block schematic equipment cards.

(2) Check quantity and type of equipment available. Check that required equipment is being installed and tested.

(3) Wire impedance compensators on all facilities requiring them, to meet transmission tester's schedule.

(4) Work circuit orders and operational tests on (a) connecting terminal link circuits, and (b) intertoll trunk circuits. Circuits are now ready to be cut onto tested line facilities.

Equipment Preparation and Acceptance.

(1) Present trunk relay equipment must have VNL options wired in. Fixed (2 db) can be wired into testboard, switchboard telephone circuits, etc. The pads should be strapped for zero loss until the intertoll trunks are converted to VNL operation.

(2) New equipment should be installed and tested to meet Circuit Order schedule.

(3) Provide 2 db pad in milliwatt tone supply system. A 2 db pad is often desirable on transmission test equipment under control of a switch to throw in the TP2 (test pad—2 db) while making routine over-all transmission tests.

Basic Facilities Tests

These tests are similar to the tests made on a new cable before putting it in service. Cables that have been very recently installed and satisfactorily tested need only an inspection of the test records to insure that they are ready to become part of a high quality transmission circuit. All other cables should receive the following tests.

Loop Resistance

This test will indicate such faults as shorts, opens, wrong gauge cable and missing load coils. The pairs are shorted tip-to-ring at the far end and the loop resistance is measured with a Wheatstone Bridge or similar precision set. The test pair would be connected to the X1 and X2 terminals of a portable bridge. The RES key is operated and the "Multiply By" knob is set at 1/1, the GA button to RVM and the BA button to "INT". Add resistance until the galvanometer needle shows a zero deflection, while the fine sensitivity button is pressed.

The reading from the bridge should equal the loop resistance per mile of the cable multiplied by the actual cable length, plus the resistance of any load coils. The loop resistance of the phantom pairs can similarly be tested if the side pairs are shorted at both ends, and the two sides are bridged at

(Continued on page 58)

Gauge Spacing Loading	Cable Type	Polar Impedance Ohms	Atten. @ 68 F. Per Mile 1000-3000 cps		173 Hybrid Type	115 Network Type	115 Network Basic End	115 Network Res. Strap	Full Section Cap.	Loop Res. Per Mile	Nominal Cutoff Frequency
19H88 S	Toll	1131	.35	.39	B	P	.18	3-4	.0704 mfd.	92.1	4000
19H50 P	Toll	675.2	.30	.32	E	R	.18	2-3-4	.1160	46.2	4200
19B88 S	Toll	1590	.28	.31	C	AF	½ coil	5-6	.0352	98.7	5600
19B50 P	Toll	945.2	.24	.26	B	AG	½ coil	3-6	.058	49.4	5900
19H32 P	Toll		.36	.39	E	BG	.173	1-5	.116	45.5	5250
19H44 S	Toll	818	.47	.49	E	AH	.168	2-3	.0704	89.4	5700
19H25 P	Toll	490.7	.39	.41	D	AJ	.166	3-4	.1160	44.7	5900
19H172S	Toll	1564.7	.28	.32*	C	AM	.184	5-6	.0704	97.3	2900
19H63 P	Toll	751.8	.29	.36	E	AN	.176	3-6	.116	48.3	3700
19H106P	Toll	976.4	.23		B	AP	.205	3-6	.116	50.1	2900
19B22 N	Toll	826.8	.47		E	T		5-6	.0352	88.1	11300
19H31 S	Toll Ent.	710	.56		E	AB	.164	None	.0704	88.2	6700
19H18 P	Toll Ent.	428.8	.46		D	AD	.166	None	.1160	44.1	6900
19H88	DNB	1136	.38	.42	B	P	.20	2-3-4	.075	93.0	3900
19H88	ENB	1017	.42	.54	B	H	.15	2-3-4	.0955	93.0	3500
19H135	DNB	1424	.30	.53	C	B	.13	None	.075	90.0	3200
19H135	ENB	1283	.34	.38	C	A	.15	None	.0955	90.0	2800
19B88	DNB	1565	.30	.34	C	M	.18	None	.0375	101.0	5500
19B88	ENB	1395	.34	.40	C	L	.18	None	.0488	101.0	4900
19B135	DNB	1745	.24		C	K	.18	None	.0375	95.0	4350
19B135	ENB	1633	.27	.42	C	J	.18	None	.0488	95.0	3950
19NL S	Toll	470	.73		D	D		3-4	.062/mi.	85.0	—
19NL	DNB	453			D	D		3-4	.066/mi.	85.0	—
19NL	ENB	402			D	D		3-4	.085/mi.	85.0	—
22H88	BSA				B	H	.15	None	.0955	176.0	3500
104 S		650-730	.066		E	T	—	—	—	10.15	
104 P		403-421	.056		D	Y	—	—	—	5.08	

DNB; low capacity exchange cable.
ENB; high capacity exchange cable.
***Loss at 2,000 cycles.**

Chart 1

PLAN PBX VISITS

By Gilbert R. Brackett

THE FREQUENCY with which any particular PBX system is visited by a telephone company service adviser usually is governed by the size of the installation, or by the number of calls that are generated by it. Large boards and extremely busy boards call for more attention.

Switchboards that are about the same size, carry approximately the same traffic load and have service characteristics that are similar, can be bunched together and scheduled for visits in chronological order best suited to their geographic locations.

Other features that enter into scheduling PBX switchboard visits, are the quality of service rendered by PBX attendants, the problems that could affect the service and the training needs of the attendants.

Many other factors influence the visit schedule. Information from service observations, the service adviser's knowledge of the conditions at the PBX, difficulties discovered during visits of commercial and plant representatives and reports from DSA operators —all such sources contribute information helpful in making a schedule for instruction and guidance.

Schedule Can Be Based On Size

When there are no adequate indexes of service status available with which to compile a visit schedule, the frequency program for regular visits may be developed on the basis of switchboard size.

The schedule which follows is merely a suggested one and should be revised to meet local conditions or needs:

(1) Monthly visits:
   (a) Dial switchboards, four-positions or more.
   (b) Manual switchboards, four-positions or more.
(2) Quarterly visits:
   (a) Dial switchboards, two- and three-positions.
   (b) Manual switchboards, two-positions with 11 or more trunks.
(3) Semi-annual visits.
   (a) Dial switchboards, one-position.
   (b) Manual switchboards, one- and two-positions, six to 10 trunks.

All PBX switchboards should be visited at least once each year, even the one-position cord boards with five or less trunks. The frequency of visits to cordless boards—and these should by no means be neglected—depends a great deal upon the general service conditions and the known need for assistance at a particular PBX.

Usually, the operation of a cordless board is only a small part of the attendant's duties, and often, several people may share in the handling of calls at one time or another. Even so, cordless boards should be visited annually for service reasons and to support good public relations.

Duration of Visit

The length of time devoted to any one PBX visit should depend upon requirements and conditions existing at the subscriber's premises. Some visits may call for only a few minutes, others may take much more time.

Therefore, the service adviser must be the judge as to the time needed to cover the subjects she may wish to discuss with an attendant. Should the attendant be too busy to give the service adviser the needed attention, no pressure should be used. Arrangements should then be made to return at a more opportune time and date.

Many conditions are found that should be discussed with the PBX attendant, extension user and management.

Are all employes working as a team, or is there a difference of opinion among the departments or individuals on what is considered good telephone etiquette?

Do the attendant and the extension users understand the policies of their management?

Is the management complacent about the service situation, too busy to respect its importance?

Other Features Affecting Service

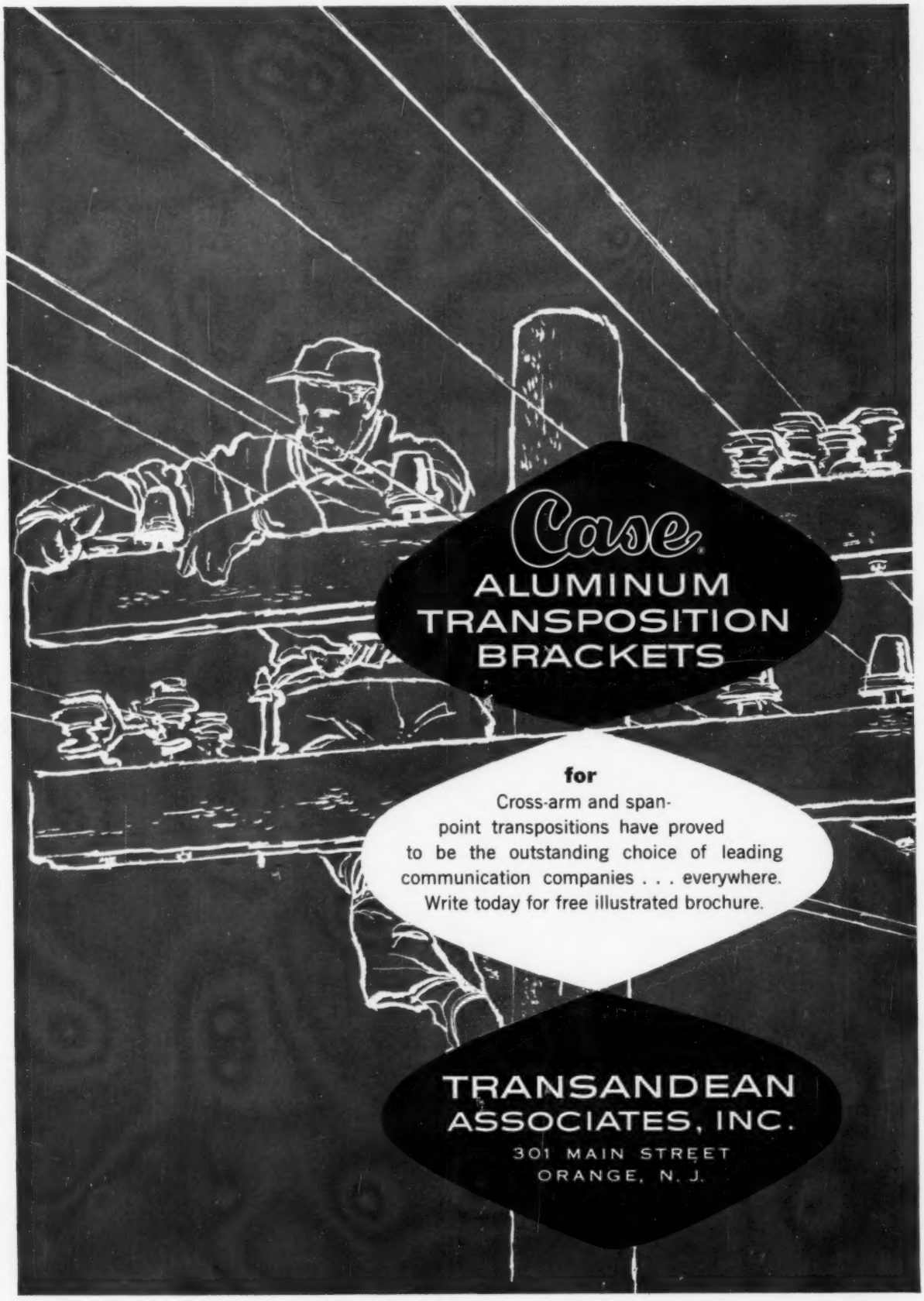
Along with attendant irregularities, there are other features not related to operating that could spell poor PBX service if not fully understood.

Is the switchboard and extension user equipment adequate?

Are equipment failures being reported promptly?

Does the attendant know the efficient way of passing and handling a toll call?

Does she keep her "frequently-called-


Case
ALUMINUM
TRANSPOSITION
BRACKETS
for
Cross-arm and span-
point transpositions have proved
to be the outstanding choice of leading
communication companies . . . everywhere.
Write today for free illustrated brochure.
TRANSANDEAN
ASSOCIATES, INC.
301 MAIN STREET
ORANGE, N. J.

number" information up-to-date and in good order?

Managements of companies having PBX's have a great deal to do with the grade of service offered by their entire organization. They should be sold on the importance of their telephone system, and how it can work hand-in-glove with profits.

They should understand that the vitality and efficiency of the business can be increased through efficient use of the telephone equipment that serves them.

They should be informed of the service adviser's work, and how she can be helpful in bringing about improvements in service which will assure customer appreciation.

Need for Subscriber Awareness

Our PBX subscribers are entitled to know what they get in return for the money they spend for their telephone facilities. They should become fully aware that the quality of service of their PBX systems depends almost entirely upon the skill of the individuals who man their telephones, and, that certain business-like practices, so essential to good service, must be followed if public good-will is to reach the level desired.

We cannot, as a telephone company, take over the supervision of subscribers' programs directed toward improved public relations through communications.

Should we ever assume such a responsibility, we must then expect to be accountable for any customer reaction that might not be to the liking of those concerned.

We must hold to but one objective—helping the subscriber company's management, its extension users and its operating people develop a better service product.

The service adviser's prime aim is to help in developing a sound service perspective among all the subscriber's employes who use the PBX facilities.

We must determine what the subscriber needs in order to supply the individual telephone user with the help he should have in order to improve ability and bring service to the desired balance.

New Installations

A new PBX installation should receive priority over all other visits. An inexperienced attendant is likely to accept suggestions from others who are not competent instructors, or who may not know of the many segments involved in operating.

Such ill counsel can, and often does, generate habits that are detrimental to the attendant and to the service provided by her employer, as well as to the telephone company.

Once bad telephone practices become a habit, they are not easy to correct. When we have the privilege of providing the initial training, we are given a splendid opportunity to transmit to the attendant pertinent information regarding—the job, the objective she should work toward, the importance of the job she has and a brief summary of how she and the telephone company must work together. This also holds true for new attendants who are replacing operators who have covered the PBX switchboard for many years.

Dealing With New Attendants

The method employed by the service adviser in dealing with a new attendant is very important, if she is to retain that person's respect and cooperation. She must be pleasant and polite. She must not criticize or correct a new attendant impulsively.

Most girls will accept correction and suggestions willingly from someone they respect, someone who not only sees faults but recognizes good points.

It is the PBX attendant's duty to give her company and its customers accurate, dependable, fast and courteous service. It is the service adviser's responsibility to see that she does just that.

Service and equipment problems and other difficulties are brought up less frequently, and are settled more amiably, when attendants, extension users and management people agree on the service objectives and work together to reach that goal.

Here the telephone company can help a great deal. Courteous, fast and satisfying service is the backbone of our tradition. We have all been inculcated with the importance of good service and taught to understand the consequences that will result from ill-spent effort. We can offer our experience and knowledge to our PBX subscriber whom we have generally found anxious to take advantage of our help.

The extent to which PBX and telephone service in general is benefited by our instructional work depends, to a large extent, upon the personality of those who do the teaching. Ideas must be tactfully presented and in a way that makes them easily understood.

(Continued on page 67)

TELEPHONY to Publish Signal Corps Issue — Order Your Copies Now

On June 21, the U. S. Army Signal Corps will celebrate its 100th anniversary—a century of service to the Army and the nation.

The Signal Corps has a unique record since its founding on June 21, 1860 by an Army surgeon, Maj. Albert J. Myer, the first Chief Signal Officer of the Army. Its praiseworthy accomplishments have been supported by both American fighting men and civilians here and abroad.

TELEPHONY will devote the entire editorial space in a special issue, dated June 18, to observe the Signal Corps' 100 years of progress in the science of Army communications—an advance from colored signaling flags to a communications satellite relaying voice and teletype messages from outer space.

Interest being shown in this special Signal Corps issue at this early date indicates there will be a great demand for copies on the part of members of the Armed Forces, and telephone operating and manufacturing personnel.

To insure the printing of a sufficient number of copies of the special issue to meet the demand, we urge those desiring copies to fill in and send to us the order blank below:

TELEPHONY Publishing Corp.
608 S. Dearborn Street
Chicago 5, Illinois

Enclosed is remittance for $_____ to cover _____ copy(ies) of your special Signal Corps issue (June 18) @ .50 per copy.

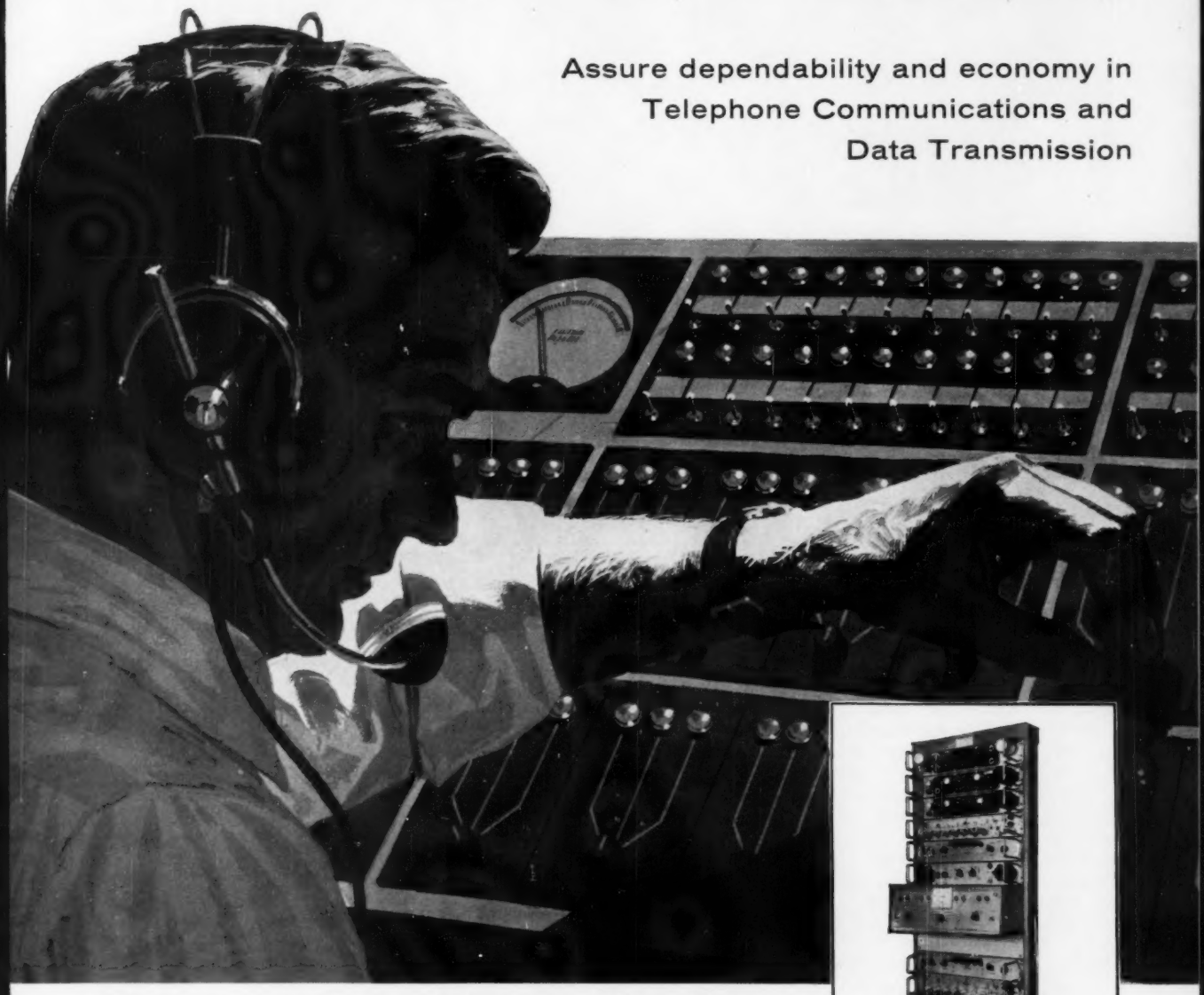
Name_____

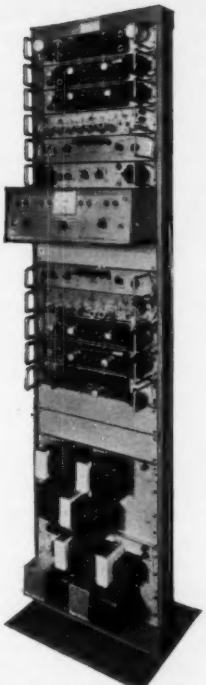
Address_____

City & State_____

PHILCO MICROWAVE
COMMUNICATIONS SYSTEMS

Assure dependability and economy in
Telephone Communications and
Data Transmission





Philco CLR-9 Microwave Relay . . . with 240 voice channel capacity. Available in Common Carrier, Industrial and Government bands.

Philco microwave systems are known for dependability, flexibility and economy. Custom designed to meet each specific requirement—and featuring Philco's time-proved CLR-9 duplex microwave terminal—these systems are providing highly reliable, unattended point-to-point communications facilities for voice and teletype . . . plus high speed data transmission. For the finest in microwave systems . . . specify Philco.

Benefit, too, from Philco's efficient TURNKEY SERVICES which include . . . Site Survey • System Planning • Installation • Field Service. We welcome your inquiries.

Government and Industrial Group, 4700 Wissahickon Ave., Philadelphia 44, Pa.
In Canada: Philco Corporation of Canada Limited, Don Mills, Ontario.

PHILCO®

Famous for Quality the World Over

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

WE ARE ADVISED by the Mullen Construction Co., Inc., of Appleton, Wis., that their crews have plowed and trenched approximately 1,680 miles of buried wire and cable during the past year. The sizes have varied from 1-pair, 19-gauge wire to 400-pair, 19-gauge lead-covered, jute and steel tape-protected cable. Plastic-sheathed cable with a copper shield was also used extensively.

One most unusual installation involved the plowing of composite, coaxial and quadded cables provided with lead and plastic jackets. The stiffness of this type cable and the hazard of coaxial tube deflections, required special equipment, extreme handling care, and plowing techniques.

Plowing through swamp land and river beds was another interesting operation. Extra-heavy plowing equipment was required when soft shale and field rock conditions were encountered.

This company is of the opinion that the future will develop a need for multi-throated plows. For example, this plow would place telephone cable at a depth of 24 inches; firm alarm cable at 30 inches; street light cable at 36 inches; and primary power cable at 42 inches. Conceivably, new urban developments could best utilize this device.

The Mullen Co. has already placed 15,000-volt power cable, a 7,500-volt power cable and a ground wire with one pass of the plow. This job was completed in 1951 and has not experienced any trouble. When trouble does occur on buried cable, various reliable testing instruments now on the market can be used to advantage. One triangulation device indicates the depth of the cable and location of the trouble.

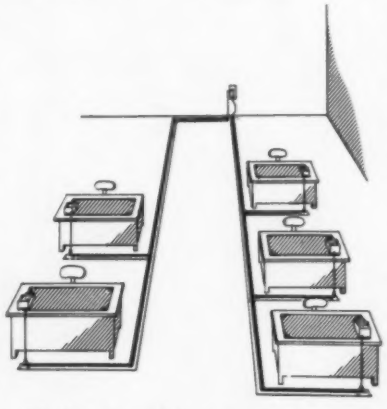
The company expects to complete approximately 4,000 miles of underground cable installation during 1960.

•

Our good friend, Charles H. Tool, management analysis officer, Telephone Engineering and Operations Division, Rural Electrification Administration, Washington, D. C., is the first man we have noticed who has modernized his telephone number. His business card carries the number 202-DUdley 8-5252. When all-numeral dialing comes to the Washington area, his number will be 202-388-5252.

•

There is now available a complete over-the-floor wiring system that can be fabricated to meet particular needs. This duct hugs the floor inconspicuously, is stumble-proof, and equipment on casters rolls over it easily.



Molded from black noiseless slip-proof rubber, it will stay in place, and can be painted to harmonize with surroundings. This duct may be equipped with either electric power or communication wiring. (See cut.)

•

We were advised by a representative of a large operating company recently that they now merely take an order for new service and do not even discuss the type of equipment to be installed with the customer. When the installer arrives on the job, he explains to the new customer the type of equipment that is best suited to his needs. This arrangement has proved that the installer on the job can sell more service than can the commercial representative in the office.

This same representative cited a case wherein a small dial system was being installed in a rural community to replace magneto service. The commercial department canvassed all prospective customers, and the number who signed up for the new service indicated that a 100-line system would take care of the present service and the expected increase over several years into the future.

When the installers got on the job and people had a look at the new equipment, practically everyone decided that he had a need for the service. This resulted in a 50-line addition to the new system.

All this appears to indicate that plant people are as good salesmen as commercial representatives, and should be included in the sales force in marketing programs.

•

The Bell System is presently making a field trial of a card type dialing arrangement. We understand this is an attachment to an ordinary telephone instrument. Place a plastic card in it and press a button and the machine does the dialing. The cards are set up to dial frequently called numbers by pushing out inserts with a lead pencil.

This arrangement should speed up service and at the same time avoid many mistakes in dialing.

•

The modern version about the bitter and the sweet has been changed to: "You've got to take the interchange with the expressway."

•

Back in 1900, the United States used 40 billion gallons of water per day. Now, 270 billion gallons are used daily.

•

Summer is when you ride bumper-to-bumper to get to the beach where you sit the same way.

NEW EXIDE SILICON DIODE TELEPHONE RECTIFIER

- **Ageless Silicon Diodes**
- **Maintenance-Free Circuitry**
- **±1% Voltage Regulation**
- **Improved Filtering**

Here is the float rectifier the telephone industry has been waiting for . . . a telephone battery charger by telephone battery people . . . a proven design now operating in hundreds of utility float battery installations.

You don't have to adjust the regulating equipment constantly to suit aging rectifiers, because silicon diodes do not change characteristics with time. Your rectifier lasts longer, needs practically no attention. You have a choice of several a-c voltage taps which allow proper initial selection for closest regulation.

A magnetic amplifier charging regulator without moving parts helps assure you of consistent voltage regulation within ±1% all the way from *zero* to full load current at the float voltage setting. This includes the particularly important 0 to 15% range.

26 models cover all standby battery applications in the telephone field. Write for more information on the one that suits your application to: Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

Exide®

THIS **LEICH** PABX
FEATURE
SELLS
BUSINESS SUBSCRIBERS

Fast Extension of Incoming

with LEICH's Exclusive Keyset Turrets

LEICH GENERAL SYSTEM
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

Calls

Modern business needs **speed** in telephone service. That's why LEICH designed compact, modern keyset attendant's turrets that do a lightning-fast job of extending calls. The operator can extend incoming calls by simply depressing two or three keyset buttons in sequence. She can do a lot of other work while she does a **better** job of handling the telephone traffic.

Inside, outgoing, consultation calls and even city trunk transfers are made without help from the turret attendant. Inside parties simply dial the number. Standard Leich dial telephones without special buttons or equipment are used.

Leich's keyset turret almost sells itself when you show it to subscribers. Why not order an attendant's turret today to use as a demonstration model.

With Leich's 40A 12-trunk keyset turret, the operator extends incoming city trunk calls by —

- **A.** Operating trunk key toward lighted lamp.
- **B.** Depressing 2 keyset buttons in sequence.
- **C.** Restoring of trunk key to normal.

12-trunk turret furnished with Leich's 40A PABX (40 lines) and 88A PABX (88 lines).

28-trunk turret provided with Leich 100T PABX (100 lines per bay, expandable).

LEICH SALES CORPORATION • 427 WEST RANDOLPH STREET • CHICAGO 6, ILLINOIS

PACIFIC COAST: 11401 W. PICO BLVD., LOS ANGELES 64, CAL.
SOUTHWEST: 1227 SLOCUM STREET, DALLAS 7, TEXAS
EAST: 3651 CONNECTICUT AVENUE, YOUNGSTOWN, OHIO
SOUTHEAST: 5126 SOUTH LOIS ST., TAMPA 11, FLORIDA

manufacturers of telephones, switchboards and related apparatus since 1907

Cornhuskers Paint an Image of Utilities' Responsibility

By Helen Hardin

THE 1960 CONVENTION of the Nebraska Telephone Association, held in Omaha, at the Sheraton-Fontenelle Hotel, on Apr. 19-21, marked the association's 60th annual meeting.

The real, and increasing, responsibility of the telephone industry in the political and economic life of Nebraska, and in every community in the state, was the convention image which leaders of the association sought to sharpen this year. Chief concerns expressed through the convention program, therefore, were in the areas of politics, and taxes, and in nuclear energy as a new industry in Nebraska.

Presiding over the association meetings was Neil Young, of Cozad, retiring president of the association. He and J. E. Nelson, secretary-treasurer of the Nebraska association, Lincoln, made their reports to the convention, and the business and program got under way.

Convention keynoter was James B. Moore, vice president and general manager of the Northwestern Bell Telephone Co., Omaha. In taking "A Plus and Minus Look at the Sixties," Mr. Moore warned Nebraskans of the danger in "expecting government to take us out of every uncomfortable spot in which we find ourselves," that this "may be producing some 'cures' that are worse than the disease."

A favorable side to the picture, Mr. Moore felt, is that of regulatory people beginning to see "that the kind of communication services needed to make this country run fast cannot be provided on 'bare bones' earnings."

On what he termed the "less optimistic" side of the picture, Mr. Moore mentioned America's situation of trade imbalance. He reminded his audience, the U. S. has become a nation that is *buying* more from other countries than it is *selling* them. Stalin's boast before his death that Communism would whip the western nations not with guns, but with trade gives pause for thought, the Northwestern Bell representative said.

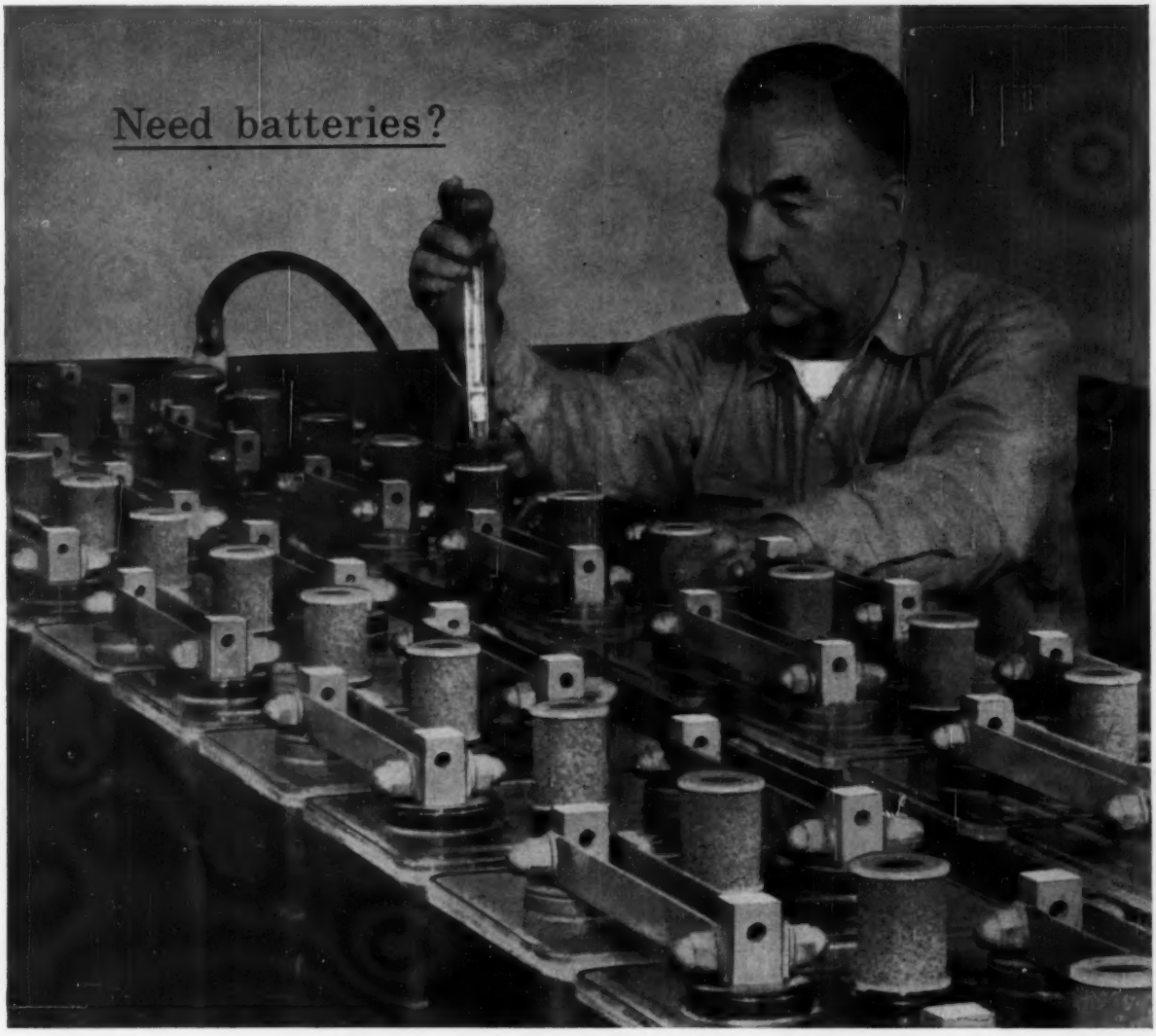
"What I am expressing is a fear that we Americans are so urgently concerned with our physical comforts, our annual wage increases, our paper signs of prosperity, that we may find our business wagon is running squarely into a thick wall," said Mr. Moore.

Providing a sobering thought were his comments on the evils of inflation, and his feeling that some economists regard inflation as a built-in essential to American-style prosperity. Mr. Moore, a believer that a little inflation leads to but one thing—a little more—would redouble the industry's efforts to end the federal excise tax on local telephone service and not stop till it is removed also from long distance calls.

Speaking more directly on the subject of the telephone industry's relationship to politics, former Nebraska

(Continued on page 48)

At a board meeting of the Nebraska association the following officers and directors were caught by the photographer: Front row, left to right: John Ahlstrand of Omaha; J. E. Nelson, of Lincoln, secretary-treasurer; Neil Young, retiring president, of Cozad; Kenneth Werner, of Chambers; and K. L. Lawson of Lincoln. Second row, left to right: LeRoy Sieckmeyer, of Blair, newly elected vice president; President, Jack Dwyer, of Hartington; J. L. Van Horn, of Grinnell, Ia.; Willard Raile of Benkelman; Clifford Thompson of Dunning; and Harold Lang, of Hay Springs. Absent when the photo was taken were J. L. Antrim of Scottsbluff, Ben Wagner of Blue Hill, and Pat Carey of Petersburg.



Equip your system with advanced design communications batteries from C&D!

Only C & D gives you two complete lines with:

1. Built-in extra life from full 266″ thick AccuPak* plates
2. Reduced shedding because of triple insulation
3. Break-resistant Hi-Impac covers
4. Explosion-proof Safety Vents

All these advantages, and many more, are available in C & D *PlastiCell** and *PlastiCal®* communication batteries. *PlastiCell* lead-antimony grid batteries are built to give you full 14-year life. Premium *PlastiCal* batteries with lead-calcium grids only require watering once a year and will last 25 years in full float service.

* *Trademark: C & D Batteries, Div. The Electric Autolite Co.*

Get complete specifications

Bulletin T-532 C & D PlastiCal Batteries

Bulletin T-533 C&D PlastiCell Batteries

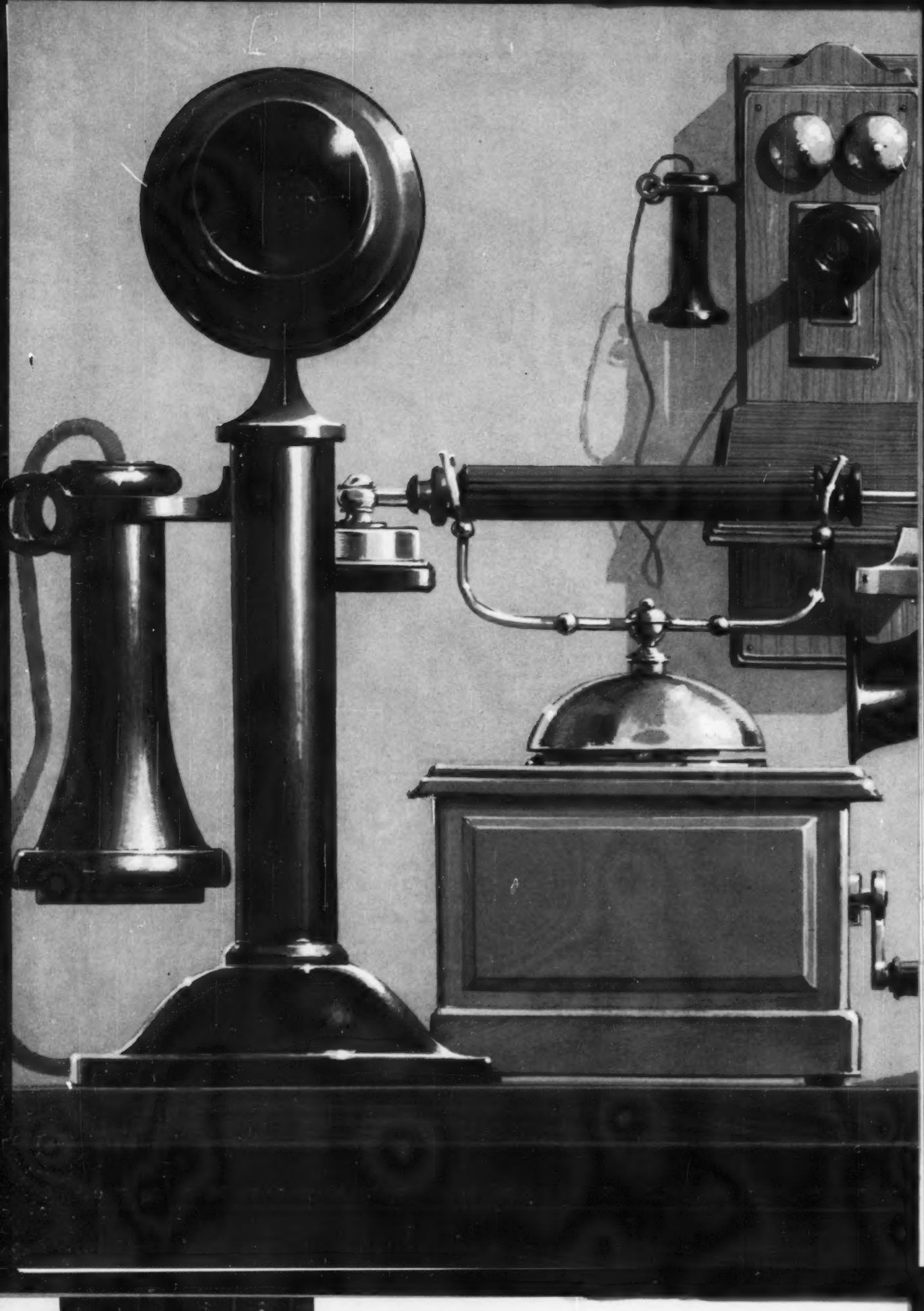
These bulletins detail C & D's superior construction, contain rack data, and complete specifications on the full line of *PlastiCell* (10 to 1680 A.H. in 37 sizes) and *PlastiCal* (50 to 1680 A.H. in 27 sizes) communications batteries.

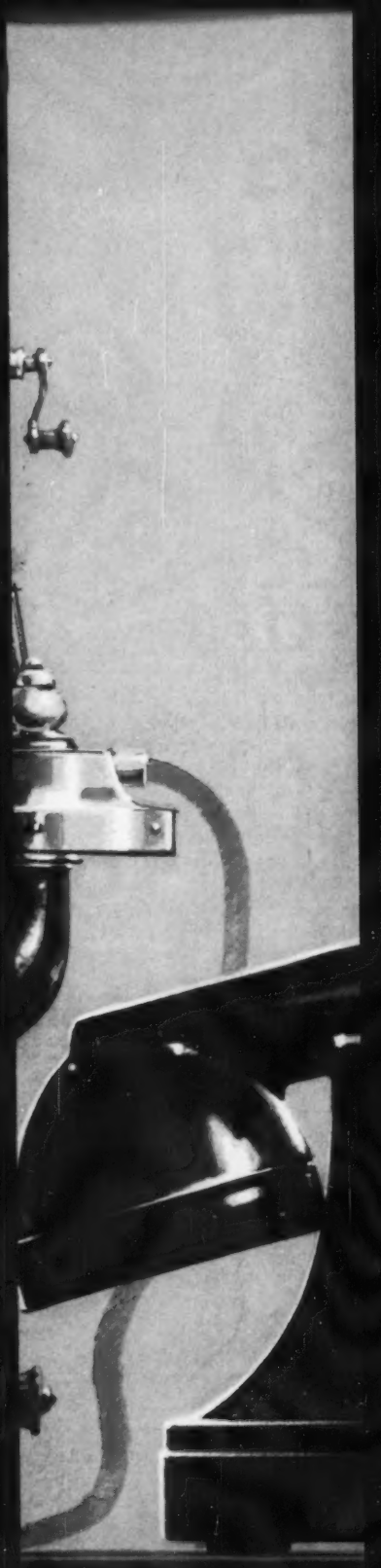
Write for your copies today.

C&D C & D BATTERIES
of Conshohocken, Pa.... Attica, Ind.
DIV. THE ELECTRIC AUTOLITE CO.

Manufacturers of Slyver-Clad® Industrial Batteries • PlastiCell® and PlastiCal® Batteries for Communications, Control, and Auxiliary Power

Producers of AutoReg® Silicon Chargers and AutoCal® Charger-Battery Combinations





Are you operating a telephone company or an antique shop?

Remember the "old" telephones? Where do you see them today? In antique shops! They are collectors items—museum pieces—nostalgia nudgers!

And what about the telephones you're buying today? If you're buying Ericofons, you're getting the only modern telephone on the market. If you're still buying old-fashioned two-piece phones, you're buying "built-in obsolescence"—it's only a matter of time now before these phones, too, become "antiques," museum pieces. The Ericofon will still be modern long after "today's" phones are only memories!

Next time you buy telephones, stop and think—think hard—do you want to buy instruments that are **already becoming obsolete?**

When you order telephones, order Ericofons—the only modern instruments in the world today—and available only from

THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

Galion, Ohio

NORTH

60-T-2

THE Operator's Corner

By MAYME WORKMAN — TRAFFIC EDITOR

HAVE YOU BEEN reading those interesting articles by Winnie B. Burnett which have been appearing in TELEPHONY from time-to-time? If not, you have been missing something worth-while.

During the recent convention of the Texas Telephone Association, the writer had the pleasure of meeting Winnie for the first time. She is a live traffic woman, in love with her work and doing an outstanding job for her company, as traveling chief operator for the Southwestern States Telephone Co., Brownwood, Tex.

Winnie is one of those people everyone calls on when they want to have a job done effectively.

She presented a fine talk at the convention's traffic session, on the subject, "Utilizing Central Office Time Effectively." This address appeared in full in the Mar. 19 issue of TELEPHONY. Mrs. Burnett also participated in a discussion on "Making Mark-Sense Make Sense," at the convention's general session.

As president of the Texas chapter of the Independent Telephone Pioneer Association, Winnie presided at the annual meeting and luncheon. When the day's responsibilities were over, she joined in the fun which is part of each state convention. She had a friendly word for each person with whom she came in contact, and it was apparent she is held in high esteem by telephone folk in Texas. I hope our paths will cross again in the near future.

Lera Johnson of the General Telephone Co. of the Southwest, presented a talk on "The V I C (Very Important Customer) Needs Special Attention." Her topic dealt with the company's relations with its customers having PBX service.

Lera did a fine job with her subject, and we learned later in the day that she is also an excellent pianist. It was fun singing to her music. All of the old-time songs were given a good play, because most everyone knows them, and they make for harmonizing. Everyone joined in the singing, whether they had a voice or not, and this makes a song-fest at a convention such good fun.

The convention programs were most attractive, highlighting the mark-sense toll ticket. All of the convention sessions were interesting and not so long as to become tiresome.

A fine program of entertainment was presented, and from the reaction of the men and women at the convention, it was evident that they profited from the business sessions and the social activities.

Manufacturers who exhibited their products added a great deal to the meeting's success by making it possible for telephone folk to see "What's New!"

Advances in telephony are being made so rapidly, it behooves all of us to keep in touch with progress and development by reading our trade journals and attending conventions, seminars and schools of instruction. We are living in a changing world, and our industry is keeping pace with progress.

Conventions are particularly helpful, not only in disseminating information, but in contacts that are made at such gatherings. One sees clusters of folks talking animatedly, and as one passes such a group, they are usually discussing some phase of the telephone industry.

Friendships are made and renewed. It had been 25 years since the writer had attended a convention in Dallas. At that time she was "fair, fat and forty." Now she is "just fat." She lunched with two girls from Southwestern Bell Telephone Co. whom she met in Dallas on her first visit.

This first Texas excursion marked two other firsts, the first time she ate flounder, and also the first time she sang, "The Eyes of Texas Are Upon You." To say it was fun to be with these girls again, after so many years, is stating it mildly.

There were some "firsts" on this visit to Dallas, too—such as meeting Ezra Lowry, the capable secretary of the Texas Chapter of ITPA, with whom I have worked for the past year. It was also a pleasure to meet some Pioneers who have served as officers of the chapter in the past.

It was good to see old friends, too, such as Jack Haley, executive secretary of the Texas Telephone Association, Oscar Burton and his family, and many others, and to meet so many new friends, too. Howard Housley and his charming wife, Esther, were a wonderful host and hostess and, before the writer becomes too deeply involved by not mentioning *all* of the fine telephone folk who attended the Texas convention, she will stop right here.

Berney Simner, president of the Independent Telephone Pioneer Association, boarded the train at St. Louis, Mo., enroute to Texas, and we took advantage of the opportunity to discuss Pioneer business. It was a wonderful trip.

Traffic Questions

(1) When should the information operator answer a new call?

(2) Should the information operator have more than one call under way at a time?

(3) In so far as possible, should information signals be answered in the order of their appearance?

(4) Are there any classes of calls to which an information operator should give preference?

(5) How should information signals be answered?

Answers to questions are on page 53.

Coaxial cable developed by the U.S. Army Signal Research and Development Laboratory, Fort Monmouth, N.J. under contract with ITT Laboratories; and manufactured by Royal Electric Corporation, Pawtucket, R.I.

Jacketed with High-Density Polyethylene—Military Cable Laid at 100 MPH!

Modern warfare requires highly dependable, quickly installed communications systems. To meet this demand, the U.S. Army Signal Research and Development Laboratory, Fort Monmouth, New Jersey has developed a new coaxial cable nomenclatured CX-4245/G, which, during engineering tests, has been laid by helicopter at speeds up to 100 mph! The new cable consists of a twisted pair of small coaxials, each jacketed with BAKELITE high-density polyethylene DGD-4100 to provide the exceptional toughness and protective qualities essential during cable laying and in actual use.

Ten miles of this cable will be boxed and carried in an aluminum frame and laid by helicopter in about six minutes. It can be strung with extreme accuracy, and even suspended in trees to cross rivers and roads.

This aerial installation calls for the superior abrasion resistance, shear strength, environmental and thermal stress cracking resistance found in BAKELITE high-density polyethylene DGD-4100. Along with these improved properties are the familiar polyethylene advantages of light weight, excellent insulating properties and ease of handling.

Get more information and samples of this material by writing Dept. BG-139, Union Carbide Plastics Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y. *In Canada:* Union Carbide Canada Limited, Toronto 7.

TYPICAL PROPERTIES "BAKELITE" DGD-4100 BLACK 9845

Properties	ASTM Test	Typical Value
Melt Index @ 44 psi (gms/10 min)	D 1238	0.2
Density	D 1505	0.957
Tensile Strength, psi	D 412	3400
Per Cent Elongation	D 412	250
Durometer Hardness, Shore Type "D"	D 676	58
Brittleness Temp., °C.	D 746	-95
Shear Strength, psi	D 732	3000
Stiffness in Torsion, @ 23°C., psi	D 1043	100,000
Tree Wire Abrasion Test	(1)	
50% Abraded (Cycles)		800,000 ca.
100% Abraded (Cycles)		1,500,000 ca.
Environmental Stress Cracking, F_{50}, hrs.	D 1693 (2)	500
Thermal Embrittlement Resistance, hrs. @ 70° C., F_0	(3)	5000
Deformation at 110 deg. C., per cent	(4)	0
Dielectric Constant	D 1531	2.65
Dissipation Factor	D 1531	.004
Dielectric Strength, Short Time, volts/mil	D 149	580

(1) IPCEA Tree Wire Test — S1981
(2) Samples previously aged 7 days @ 70° C.
(3) Standard U/L Heat Shock Test — 1/32" insulation on #14 AWG solid copper conductor wrapped around its own diameter.
(4) UCPC Method WC 75 B/3—1/32" wall on #14 AWG wire. Test terminated at 5000 hrs.

UNION CARBIDE

"Bakelite" and "Union Carbide" are registered trade marks of Union Carbide Corporation.

the maintenance man is

almost out of the picture

THAT'S WHY STROWGER COSTS YOU LESS TO OPERATE!

When purchasing central office equipment, the experienced buyer looks for a product that offers minimum maintenance. That's why so many telephone men choose Strowger Automatic. Let's look at the reasons behind their decision...

simplicity of design. Strowger operates on a step-by-step principle and has the simplest possible construction. This keeps adjustments and repairs to a minimum. The position of the switching components permits visual tracing of circuit operation. This speeds training of personnel and makes trouble-shooting quick and easy.

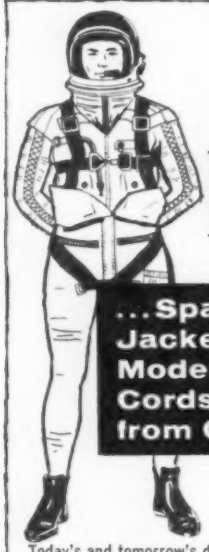
quality construction. Each Strowger part is manufactured to the closest possible tolerance. Careful control is applied to every component to assure accuracy of adjustment and trouble-free performance. Yes, with Strowger, the maintenance man is almost out of the picture.

FIND OUT FOR YOURSELF! Visit several Strowger exchanges. You'll discover that Strowger offers unsurpassed simplicity in design. You'll also see the craftsmanship and quality construction of this famous equipment. Convince yourself. Then get in touch with us. We'll be glad to help you plan for your dial conversions. Write Automatic Electric Sales Corporation, Northlake, Illinois. Or, call Fillmore 5-7111. In Canada, Automatic Electric Sales (Canada) Ltd., Toronto 16.

AUTOMATIC ELECTRIC

Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM



P.V.C.

...Space-Age Jacket for Modern Phone Cords from COMCO

Today's and tomorrow's demands on your system calls for ever tougher, more durable and trouble free equipment. In cords, that's P.V.C. from COMCO,

Superior to Neoprene in toughness and crack resistance, this P.V.C. (Poly-Vinyl-Chloride) jacketing has other advantages, too. Jacket's smoother inner surface permits conductors to flex freely . . . eliminates binding and fracturing —thus assuring longer noise-free life.

P.V.C. jackets are standard on all COMCO straight cords and Spiraflex Rectractile Cords . . . choice of black or ten colors.

Let COMCO cater to your cord requirements! Handset, deskstand, operator, switchboard, test, patch and inter-communication cords. Standard and extra lengths.

Write for Catalog, Samples and Prices

COMCO

COMMERCIAL CORD COMPANY, INC.

CLIFTON SPRINGS, N. Y. • HOward 2-2311

Distributed by: LEICH SALES CORP. 427 W. Randolph St., Chicago 6, Illinois

AUTOMATIC ELECTRIC SALES CORP. Northlake, Ill.

Courts and Commissions

Pa. Bell, Independent Seek Toll Elimination

The Bell Telephone Co. of Pennsylvania, it was reported on Apr. 23, has asked the Pennsylvania Public Utility Commission to approve the elimination of a 10-cent toll between Bell's Bloomsburg exchange and the Orangeville exchange of the Commonwealth Telephone Co., Dallas.

The Bell company told the commission that this change would have no effect on its Bloomsburg subscribers.

The Commonwealth company on Apr. 26 proposed rate changes designed to save its 270 Orangeville subscribers an estimated $2,140 per year.

The changes, to be effective June 21, would eliminate the 10-cent toll charge for calls to the Bell Bloomsburg exchange, and raise rates in the Orangeville exchange.

The toll elimination is estimated to save subscribers $3,379 annually, while monthly bills would go up $1,239 annually.

New Rates Approved For Georgia Company

The Waverly Hall Telephone Co. on May 3 was granted a rate increase by the Georgia Public Service Commission.

Old rates and new rates to be effective June 1 are as follows:

	Old	*New*
One-party business	$5.00	$6.00
Two-party business	4.00	5.00
Four-party business	3.00	4.00
Multi-party rural business	3.50	3.75
One-party residence	3.00	3.75
Two-party residence	2.50	3.00
Four-party residence	2.00	2.50
Multi-party rural residence	2.50	2.75

The new rates are the same as those requested by the company with the exception of the charge for one-party residence service. The company had asked that this be raised to $4.25.

Ask Financing OK in Ark.

The Arkansas Public Service Commission on May 6 was to have heard the application of the Lincoln-Desha Telephone Co., Dumas, to borrow $60,000 from Bankers National Life Insurance Co. of Montclair, N. J.

N. C. Company Asks Raise

The North Carolina Telephone Co., Matthews, has asked the North Carolina Utilities Commission for permission to raise rates at its 12 exchanges, to increase its revenue by $71,000 a year. The commission has set June 2 as the date for a hearing on the petition.

Must Pass on Depreciation Savings, Cal. PUC Reiterates

The California Public Utilities Commission has refused to reconsider its ruling that utilities must pass on to their subscribers tax savings derived from the use of accelerated depreciation (TELEPHONY, Apr. 25, 1959).

The commission rejected a charge by Southern California Edison Co. that its decision was "erroneous and unlawful."

Under the provisions of a 1954 federal law, utilities are permitted to write off investments in new plant, and similar expansion projects, at about twice the normal rate of depreciation. The California commission has ruled that this accelerated depreciation must be passed on to the consumer.

The utility companies have argued that their income taxes in future years will be all the higher, if they use up deductions from fast depreciation at present. These write-offs are merely tax deferrals, the companies point out.

Commission Hears Two Rate Requests in Wisconsin

The Wisconsin Public Service Commission on May 17 was to have heard the application of the Door County Telephone Co., Bailey's Harbor, for authority to increase its rates.

•

On May 19, the Wisconsin commission was to have heard the application of the Viroqua Telephone Co. for permission to raise its rates.

Mich. Judge Issues Decree; Makes Dissolution Possible

Circuit Judge John C. Dalton on May 4 signed a court order directing all persons claiming a property interest in the Pulaski (Mich.) Telephone Co. to file their claims with a court-appointed receiver on June 2 to 4.

Officers of the Pulaski company in March filed a petition in circuit court asking that the firm be dissolved and its assets liquidated in order to clear the way for consolidation with the Concord Telephone Co.

The Concord company is reported to have commission approval to serve Pulaski. The Pulaski company is a switchboard association, which has been unable, according to its officers, to carry

HAROLD S. BLACK, LAMME MEDALIST

A MAN WINS A MEDAL...AND STRENGTHENS A PHILOSOPHY

The search for the "hitherto unattainable" sometimes ends in strange places.

For years Bell Laboratories engineer Harold S. Black pondered a problem: how to rid amplifiers of the distortion which unhappily accumulated as signal-transmission paths were made longer and amplifiers were added. There had been many approaches but all had failed to provide a practical answer.

Then one day in 1927 the answer came—not in a research laboratory, but as he traveled to work on the Lackawanna Ferry. On a newspaper, Mr. Black jotted down those first exciting calculations.

Years later, his *negative feedback principle* had revolutionized the art of signal amplification. It is a principal reason why telephone and TV networks can now blanket the country, the transoceanic cable is a reality, and military radar and missile-control systems are models of precision.

For this pioneer achievement, and for numerous other contributions to communications since then (some 60 U. S. patents are already credited to him), Mr. Black received the 1957 Lamme Medal from the American Institute of Electrical Engineers. He demonstrated that the seemingly "unattainable" often *can* be achieved, and thus strengthened a philosophy that is shared by all true researchers.

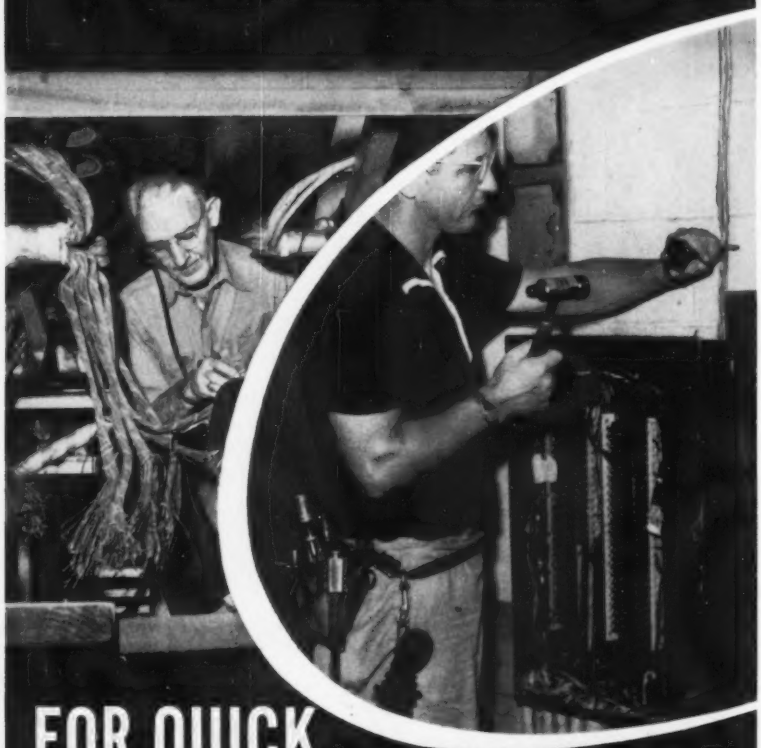
He is one of many Bell Telephone Laboratories scientists and engineers who have felt the challenge of telephony and have risen to it, ranging deeply into science and technology. Numerous medals and awards have thus been won. Two of these have been Nobel Prizes, a distinction without equal in any other industrial concern.

Much remains to be done. To create the communication systems of the future, we must probe deeper still for new knowledge of Nature's laws. We must continue to develop new techniques in switching, transmission and instrumentation for every kind of information-bearing signal. As never before, communications offer an inspiring challenge to creative men.

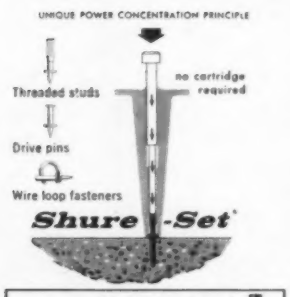
BELL TELEPHONE LABORATORIES

WORLD CENTER OF COMMUNICATIONS RESEARCH AND DEVELOPMENT

Experienced installers use SHURE-SET



FOR QUICK EASY FASTENING AND DRILLING INTO CONCRETE



Newly-patented hammer actually absorbs shock, increases power and reduces worker fatigue. Ask for model R-400.

other products by

Looking for a way to speed fastening time and reduce mess on every job? Shure-Set is the best answer . . . a lightweight, versatile, easy-to-use tool with proved ability to set rugged fasteners into concrete, block or masonry quicker and easier than old-fashioned methods. No pre-drilling, no cartridge—a few hammer blows and the job is done! Approved Shure-Set tools and fasteners are precision-made of the finest materials, assuring maximum dependability and trouble-free service.

Here's another advantage—the Shure-Set tool doubles as a masonry drill holder, for use where "tap-and-turn" drilling may still be required. Versatility . . . dependability . . . worker acceptance . . . efficiency . . . wide selection of austempered fasteners . . . all good reasons for you to call your Shure-Set or Ramset dealer (under "Tools" in Yellow Pages), or write us direct for cost-cutting details.

Ramset® Fastening System

OLIN MATHIESON — WINCHESTER-WESTERN DIVISION
297-E Winchester Ave. • New Haven 4, Conn.

through the consolidation because it lacks regulations permitting majority rule.

The Pulaski company, in asking approval of the dissolution, claimed that most of its present subscribers prefer dial service, which it is reported, the Concord company would provide.

Ask OK of Stock Issue; to Finance Expansion in N. C.

The United Telephone Co. of the Carolinas, Inc., Southern Pines, asked the North Carolina Utilities Commission on May 6 for authority to issue a million dollars' worth of 5¾ per cent first mortgage bonds and to issue an additional $50,000 of its common stock.

The company said the money would be used for its expansion and renovation program, and pay up short-term debts. The bonds would have 30 years maturity.

Approve Merger of Two Iowa Independents

A merger of the Farmers Mutual Telephone Co., Shellsburg, Ia., and of the Urbana (Ia.) Mutual Telephone Co. has been agreed upon, according to D. D. George, manager of the Farmers Mutual company.

Urbana residents have approved a franchise for the Shellsburg company, which, it is reported, will construct a new building and cut over to dial service by Mar. 1 next year.

OK Service Transfer in Ill.

The Inland Telephone Co., Champaign, has been granted a certificate of convenience and necessity by the Illinois Commerce Commission to serve the territory presently served by the Saunemin Mutual Telephone Co., according to James L. Cabel, Inland's president. The Saunemin company will continue to operate for the rest of this year. Inland plans to install a dial system for Saunemin about next November.

Authorize Stock Sale in Ill.

The Middle States Telephone Co., Des Plaines, was recently granted permission by the Illinois Commerce Commission to sell 42,000 shares of common stock to its parent company, Central Telephone Co. The commission approved the sale at $24 per share, for a total of $1,008,000, to be used to reimburse the company for facility improvements.

Approve Sale in Missouri

The Missouri Public Service Commission on May 6 approved the sale of the Speed Telephone Co. to the Mid-Missouri Telephone Co., Gilliam (TELEPHONY, Feb. 27). Effective date of the sale is June 2.

. . . The Ten Pillars of Economic Wisdom

I. Nothing in our material world can come from nowhere or go nowhere, nor can it be free: everything in our economic life has a source, a destination, and a cost that must be paid.

II. Government is never a source of goods. Everything produced is produced by the people, and everything that government gives to the people, it must first take from the people.

III. The only valuable money that government has to spend is that money taxed or borrowed out of the people's earnings. When government decides to spend more than it has thus received, that extra unearned money is created out of thin air, through the banks, and, when spent, takes on value only by reducing the value of all money, savings, and insurance.

IV. In our modern exchange economy, all payroll and employment come from customers, and the only worthwhile job security is customer security; if there are no customers, there can be no payroll and no jobs.

V. Customer security can be achieved by the worker only when the "boss" is allowed, by the worker, to do the things that win and hold customers. Job security, therefore, is a partnership problem that can be solved only in a spirit of mutual understanding.

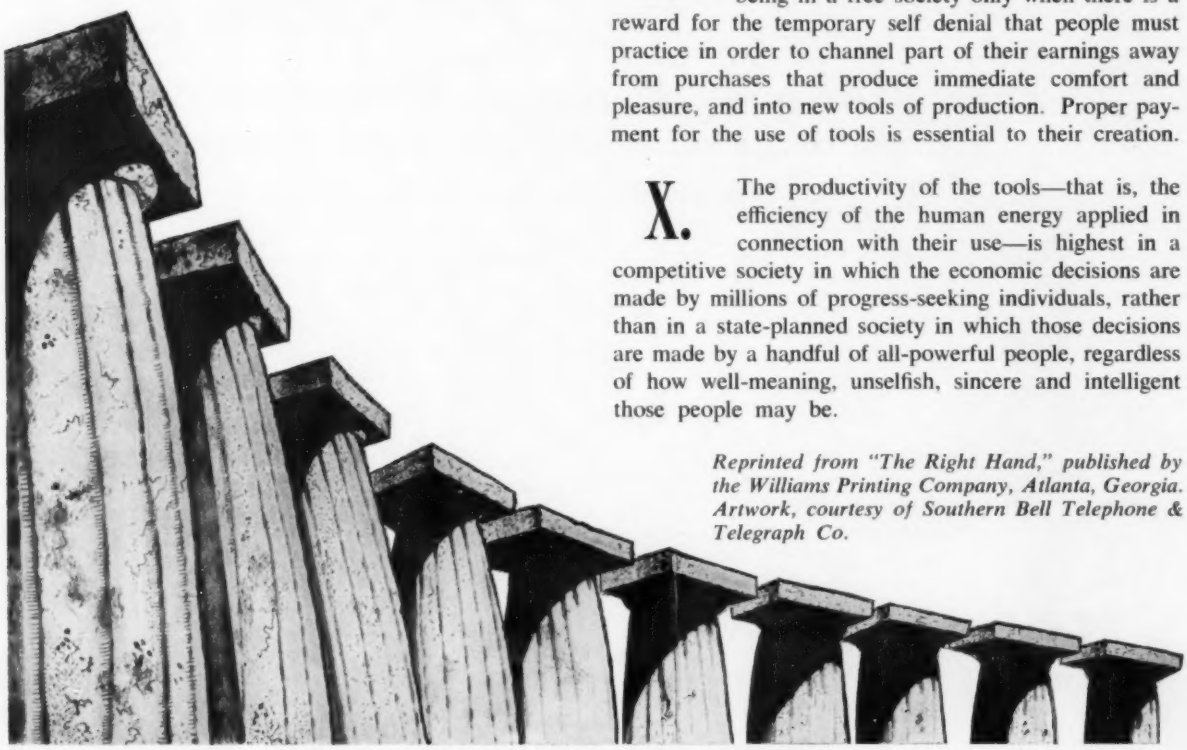
VI. Because wages are the principal cost of everything, widespread wage increases, without corresponding increases in production, simply increase the cost of everybody's living.

VII. The greatest goods for the greatest number means, in its material sense, the greatest goods for the greatest number, which in turn, means the greatest productivity per worker.

VIII. All productivity is based on three factors: 1) natural resources, whose form, place, and condition are changed by the expenditure of 2) human energy (both muscular and mental), with the aid of 3) tools.

IX. Tools are the only one of these three factors that man can increase, and tools come into being in a free society only when there is a reward for the temporary self denial that people must practice in order to channel part of their earnings away from purchases that produce immediate comfort and pleasure, and into new tools of production. Proper payment for the use of tools is essential to their creation.

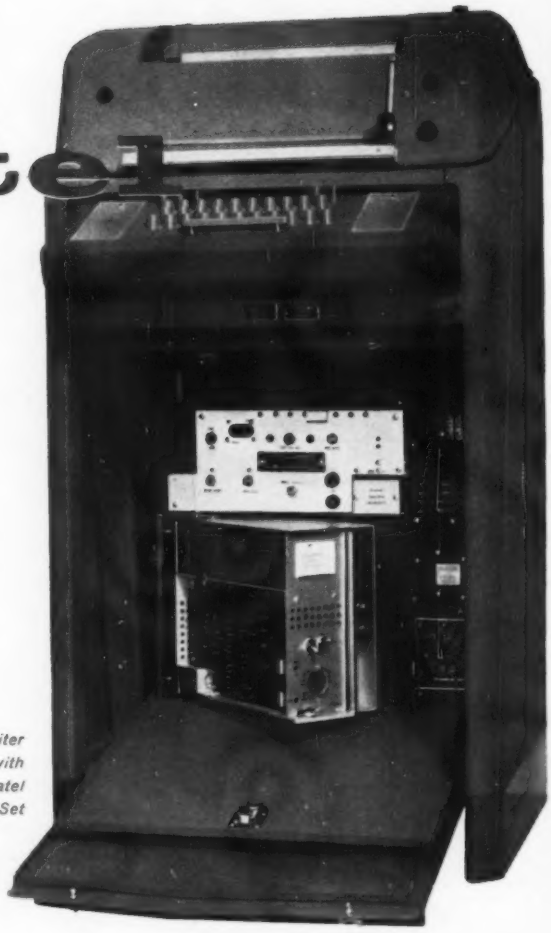
X. The productivity of the tools—that is, the efficiency of the human energy applied in connection with their use—is highest in a competitive society in which the economic decisions are made by millions of progress-seeking individuals, rather than in a state-planned society in which those decisions are made by a handful of all-powerful people, regardless of how well-meaning, unselfish, sincere and intelligent those people may be.



Reprinted from "The Right Hand," published by the Williams Printing Company, Atlanta, Georgia. Artwork, courtesy of Southern Bell Telephone & Telegraph Co.

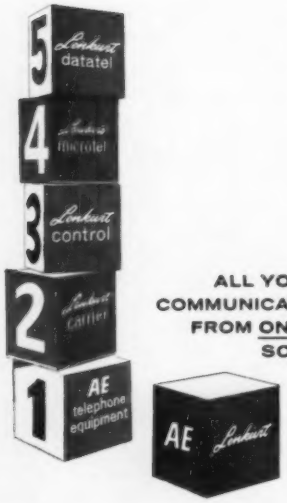
Lenkurt datatel

THE NEW APPROACH TO PROFITABLE CIRCUIT GROWTH



Teletypewriter with Datatel Subscriber Set

Adds high-speed telegraph, telemetering, digital transmission and remote control facilities to any communications circuit



ALL YOUR COMMUNICATIONS NEEDS FROM ONE DEPENDABLE SOURCE

Lenkurt Type 23A Datatel telegraph carrier equipment opens up new and important sources of revenue from business and industrial concerns seeking ways of speeding up day-to-day transactions between offices and plants. It offers you the opportunity of getting more of the highly profitable leased-line and extra toll business *now*.

Lenkurt 23A is designed to operate over voice-frequency circuits, whether physical, carrier-derived, or radio. It can be used for carrier telegraph *up to 100 wpm*, or for the transmission of digital data, telemetering information and control signals.

Provisions are made for the simultaneous operation of 18 channels on a 4-wire circuit, or 9 channels on a 2-wire circuit. Eight additional 4-wire channels or four 2-wire channels are provided above the v-f range, between 3550 and 5050 cps.

Lenkurt Datatel is further proof that AE-Lenkurt is equipped to provide for *all* of your communication needs—planning, equipment, installation, supplies. *There's never need to look elsewhere.*

For full information on Lenkurt Datatel and companion equipment, call your Automatic Electric representative, or mail coupon today.

Check these features!

★ Frequency-shift telegraph carrier system with operating speeds up to 100 words per minute.

★ *Fully transistorized* equipment capable of operating directly from 48 volts d.c. (or 115-volt, 60-cycle mains if desired).

★ Low power consumption—only 2.5 watts dissipation per channel!

★ Trouble-free polar receiving relay provides greater flexibility in loop arrangements than electronic keyer.

★ FS operation affords greatest tolerance to level changes with smaller variations in bias.

★ Presence or absence of carrier can be used for signalling or supervision, as in TWX or TLX service.

★ Partially equipped systems can be installed with only one or two channels—expanded in small steps thereafter.

★ *One* channel unit type is common to *all* channels. Frequency-determining networks are plug-in, simplifying spare equipment requirements.

★ Transistorized circuitry and polar relay simplify servicing. A multimeter and VTVM are normally the only test instruments required.

Automatic Electric Sales Corporation
Northlake, Illinois
Attention: Mr. T. B. Collins, Director, Carrier & Radio Sales

Please send literature on:

- ☐ Lenkurt "Datatel" Telegraph Carrier Equipment
- ☐ Lenkurt "Mobiltel" Mobile Telephone Equipment
- ☐ Lenkurt Microwave
- ☐ Lenkurt Carrier

Name.....

Title.....

Company.....

Address.....

City.....Zone.....State.....

In Canada: Automatic Electric Sales (Canada) Ltd., 185 Bartley Dr., Toronto 16, Ont.

Channel equipment shelf with 4 channel units

AUTOMATIC ELECTRIC

GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

NEBRASKA CONVENTION

Continued from page 34

governor, Robert B. Crosby, who served as his state's chief executive in 1953 and 1954, said simply, "Politics Are Practical."

Elaborating on this forthright statement, Mr. Crosby said:

"Our state and federal governments need two strong parties, and it is part of every citizen's civic duty to participate in politics, whether Democrat or Republican—just as important as your work and family . . . none can be neglected.

"Every organized group should participate in the shaping of the path government should take, for what we shape in government now, will have a detailed effect on our children. Now is the time for business to participate in politics, for participation will form the destiny of the future generations."

Nebraskans heard as their third convention speaker Charles D. Sayre, public relations director of the Consumers Public Power District. His subject was "Nuclear Energy Comes To Nebraska."

In discussing the nuclear power plant now under construction near Hallam, he showed a film describing the future operation. The Hallam plant will not only generate electricity at competitive costs, he told the audience, but develop various by-product industries, which, in turn, will encourage further industrial and communications growth in the state.

Nebraska Telephone Association men and women in session during the 1960 meeting in Omaha.

Foster B. McHenry, of Jefferson City, Mo., president of the United States Independent Telephone Association, was honored at the Nebraska association's President's luncheon on the opening day of the meeting. He later addressed the convention on the potentials for the telephone industry, now that "The Golden Decade Is Here."

". . . the brightest years and largest opportunities lie ahead of us," Mr. McHenry reminded the telephone men and women. In order to keep pace with the growing population and its needs for service, "we must recruit a greater number of young people who will be interested in the communications industry. We must have more technical trainees to cope with new and presently unknown problems. We must have more people and higher trainee standards for executive, management and supervisory positions."

At the REA Borrowers' breakfast and meeting, Norman McFarlin, Assistant Administrator of the REA, Washington, D. C., was the speaker.

Two very meaty subjects, assured of interest on the part of telephone conventionites, anywhere, were those selected by Joseph Brown and Fred Herrington.

Mr. Brown, who is chairman of the

Wire for all type spinners

ELECTRO-GALVANIZED

GALVANIZED

STAINLESS STEEL

ALUMINUM

COPPERWELD

COPPER

LASHING WIRE

WE PRODUCE

The finest lashing wire possible because we believe . that lashing wire is one of the important parts of the cable plant, its duty being to hold the cable to the messenger for the life of the plant.

•

WE COIL

The best coil possible because we know that tangled or out of shape coils can cause spinning trouble, waste and delay

Write for Complete Information

CABLE SPINNING EQUIPMENT CO.

Topeka Kansas

Nebraska Railway Commission, led off with his talk on "What We Owe the Public."

A University of Nebraska educated lawyer, Mr. Brown asserted that:

"Each of us must make whatever effort is required to keep ourselves informed on the important public questions confronting the country. *Knowledge, not prejudice, is vital to intelligent judgment on public issues,*" he said.

"As responsible citizens enjoying the fruits of a free society, we have an obligation to take an active interest in government. Just voting and contributing a few dollars isn't enough any more. We must actively participate—and we should permit and encourage those in business with us to do likewise. In this connection, such encouragement of employes should be on the basis of 'no strings attached' and each individual's judgment as to what is best for the country as a whole.

"As the caretakers of regulated forms of American business, we, too, can make important contributions to world competition in ideology. Public utility services in a large segment of the remainder of the world are provided under government ownership. The largest example of privately owned and operated utility companies exists in this country . . .

"It is a time for renewed effort and determination to demonstrate to Americans first, and to the world at large, that the public interest is best served when vital public services are provided under private auspices as a free enterprise consistent with democratic principles."

Speaking out on the tax issue, Mr. Brown said, "We (the Nebraska com-

Merle Hale, vice president of the Lincoln (Neb.) Telephone & Telegraph Co., addressing a session of the recent Nebraska Telephone Association meeting.

Use with Ready Access, Splice Case or other similar butt or lap type splicing operations.

- **No high resistance joints**
- **Inexpensive**
- **Color coded band for easy wire size identification**

To 24 AWG Terminal Block Conductors
Used with "B" die groove
standard compression tools (Reliable No. 3 BA)

Reliable
A Symbol of Integrity Since 1909

ELECTRIC COMPANY
Franklin Park, Illinois

Please send me a sample package of "H" SQUEEZ Sleeves.

NAME_____ POSITION_____

COMPANY_____

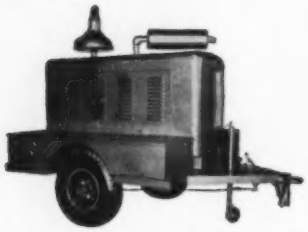
STREET_____

CITY_____ ZONE____ STATE_____

There's VERSATILITY in TELEPHONE SYSTEM SERVICE and Portability with...

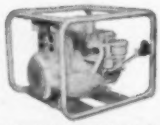
U.S.

Complete "versatility" is possible for telephone system service with portable U.S. Versa-Trailer standby emergency power units in sizes from 10 kw to 35 kw capacity.



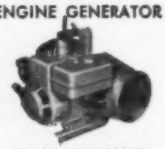
Units provide both single phase power for lights and 3-phase power for other needs. Many exchanges in an area can be served by a single unit.

Telephone systems use U.S. portable generating sets for on-the-spot power needs. Sizes 750 watts and larger, air-cooled.



ENGINE GENERATOR

Portable engine blowers provide convenient means of furnishing fresh air to manholes, or for ejecting smoke, fumes, etc.



ENGINE BLOWER

Motor driven blowers like engine driven counterparts, are invaluable for exhausting contaminated air.

MOTOR DRIVEN BLOWER

for complete information write . . .

UNITED STATES MOTORS CORPORATION
LIGHT U.S. POWER
OSHKOSH · WISCONSIN

UNITED STATES MOTORS CORPORATION

110 W. 5th Ave. / Oshkosh, Wis.

mission) strongly feel that the most inequitable feature of the entire existing tax structure is the 10 per cent tax applied to telephone service and transportation." He pointed to the recent adoption by that body of a resolution favoring the dropping of the federal excise tax.

"Any fair-minded person," continued Mr. Brown, "would certainly agree that it is unfair to tax an essential, vital public service such as telephone service . . . In addition, it is the only household service so treated, and I can't understand why."

In summary of his thought on the tax, he said, "I am sure that you in the telephone business as good and responsible citizens expect to assume your fair share of the tax load. I would hazard the view, however, that we would have to search a long while before we could find another service or product whose selling price would include as high a proportion of taxes!

"Serving the public interest to the best advantage should be the paramount objective in our mutual (company-commission) activities," the Nebraska Commission chairman said. "We (the commission) feel that utility companies that are progressive, soundly managed, highly motivated, and alert to their public responsibilities will best fulfill this need.

"An effective regulatory system will offer encouragement and direction toward these same objectives. The resulting satisfaction and approval of customers individually and of the public generally, will certainly go far in discharging our obligations to promote free and private enterprise, promote democratic principles, help meet ideological competition on the world scene, and protect the American concept of free government."

Fred A. Herrington, a former member of the Nebraska State Tax Commission, and presently, executive secretary of the Nebraska Citizens Council, in his address, "Taxes—Nebraska Spectator Sport," hit home.

He discussed the whys and wherefores of the faults in taxation systems, indicating that he deplores the lack of activity and lack of interest in taxation the average citizen has shown. He feels that the individual should have a keen interest in the formation of tax structures in his own state.

Looking into the future, Mr. Herrington said,

"I predict that 1961 is going to be a year of important tax legislation. All the authorities of my acquaintance predict increased tax legislation for the next few years.

"Is it right, then, that only a handful of Nebraskans will control the kind of legislation and determine the amount of spending? These individuals represent a lot of people, but unless they represent you and your point of view, you are going to be out in the cold. I am convinced," he summed up, "that unless more people are willing to speak up publicly, those who feel that our system is a 'mess' are going to continue to get 'more of the same.'"

Directors re-elected to serve the Nebraska Telephone Association for 1960-61 are: Jack Dwyer of Hartington; LeRoy Sieckmeyer, of Blair; Neil N. Young, of Cozad; J. L. Antrim, of Scottsbluff; Kenneth Werner, of Chambers; K. L. Lawson, of Lincoln; and J. L. Van Horn, of Grinnell, Ia.

Elected for first terms on the board of the association were: Clifford Thompson, of Dunning; Ben M. Wagner, of Blue Hill; John Ahlstrand, of Omaha; Pat J. Carey, of Petersburg; and Harold Lang, of Hay Springs.

The board elected these officers: President, Mr. Dwyer; and as vice president, Mr. Sieckmeyer. J. E. Nelson continues as secretary-treasurer.

Puddings Must Be Proved

"No man was ever endowed with a judgment so correct and judicious, in regulating his life, but that circumstances, time and experience would teach him something new, and apprise him that of those things with which he thought himself the best acquainted, he knew nothing; and that those ideas which in theory appeared the most advantageous were found, when brought into practice, to be altogether inapplicable."—TERENCE.

THE MANSFIELD TELEPHONE COMPANY
Serving the Key Area to North Central Ohio
MANSFIELD, OHIO

A newspaper advertisement recently announced the adoption of a seal by the Mansfield Telephone Co. This seal will appear on all company cars, building doors, outdoor booths, letterheads, all printed matter, and in all advertisements. The seal is 7-7/8 inches in diameter. The lettering is in gold on an olive green background with the exception of the center of the circle which is cream.

MARKETING SALES QUOTAS...

Continued from page 23

this kind is not to discourage the person who is trying to accomplish realistic quotas in the marketing of telephone answering devices in the service sector of the American economy.

The service divisions and the service groups which should be considered by the analyst assigned to promote the sale of telephone answering instruments are shown in the following summarized form:

(1) *Lodging Places:*
Hotels, tourist courts, and motels.
Rooming and boarding houses.
Trailer camps and parks.
Organization hotels and lodging houses, on membership basis.

(2) *Personal Services:*
Laundries, laundry services, and cleaning and dyeing plants.
Photographic studios, including commercial photography.
Beauty shops.
Barber shops.
Shoe repair shops, shoe shine parlors, and hat cleaning shops.
Funeral service and crematories.
Pressing, alteration, and garment repairs.
Miscellaneous personal services.

(3) *Miscellaneous Business Services:*
Advertising.
Consumer credit reporting agencies, mercantile reporting agencies, and adjustment and credit agencies.
Duplicating, addressing, blueprinting, photocopying, mailing, mailing list, and stenographic services.
Services to dwelling and other buildings.
News syndicates.
Private employment agencies.
Business services (not elsewhere classified).

(4) *Automobile Services:*
Automobile rentals, without drivers.
Automobile parking.
Automobile repair shops.
Automobile services, except repair.

(5) *General Repair Services:*
Electrical repair shops.
Watch, clock, and jewelry repair.
Reupholstery and furniture repair.
Miscellaneous repair shops and related services.

(6) *Motion Pictures:*
Motion picture production and distribution.
Motion picture service industries.
Motion picture theaters.

(7) *Amusement and Recreation Services, Except Motion Pictures:*
Dance halls, studios, and schools.
Theatrical producers (except motion pictures), bands, orchestras, and entertainers.
Bowling alleys and billiard and pool parlors.
Sports promoters and commercial operators and miscellaneous amusement and recreation services.

(8) *Medical and Other Health Services:*
Offices of physicians and surgeons.

In 1949, S & G was asked to develop a Portable Power and Pumping Unit for one of the large telephone companies; and in 1950, after building a prototype unit which was approved by this company's engineers, was awarded a contract to build a large quantity of what is now known as the S & G Mobile Power Unit. These dependable and versatile portable plants are now in use by the hundreds, proving that QUALITY and ECONOMICAL OPERATION pay off handsomely in the maintenance field.

A few of the Mobile Power Unit's outstanding features are:

- **Generator (slow speed for *quietness*)—2500 Watt, 110 Volt DC**
- **Pump—2800 GPH Diaphragm to remove seepage and drain back, can be operated from manhole by push button control**
- **Air Compressor—to put cables under dry air pressure, operate air tools, for repairs and flash testing**
- **300-Watt floodlight illuminates working area**
- **Operates soldering pot and iron, electric and air tools and safety lights**
- **Electric blower to ventilate manhole**
- **Supplies dry air for cable cut-overs, flash testing, etc.**
- **Buzzer signal for summoning helper**
- **Entire unit is light, easy to handle**

Order through your favorite distributor • For information, write or phone

S & G MANUFACTURING CORPORATION

DESIGNERS AND MANUFACTURERS OF
SPECIAL EQUIPMENT FOR UTILITIES AND CONTRACTORS
1017 Magazine St. • P. O. Box 1309 • New Orleans 10, La. • JA 5-3142

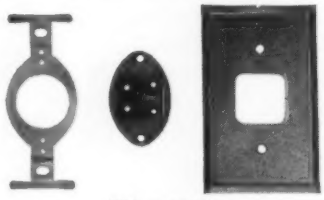
WHAT'S NEW AT SUTTLE

REA accepted

NEW Outdoor Weatherproof Jack Boosts Revenues!

Subscriber demands for outdoor, backyard, or patio telephone service are growing fast. The new SE-16151 Outdoor Weatherproof Jacks from SUTTLE "fill the bill" for every outdoor use. The non-corrosive, waterproof, aluminum receptacle houses the SE-493A jack (above). This new jack makes an excellent extension sale-revenue booster. Another SUTTLE *quality* product at low cost. Order now from SUTTLE or your local distributor.

Price $6.50 each



REA accepted

SE-43A Bracket	SE-493-A Oval Jack	SE-19B Face Plate
$.28 ea.	$1.30 ea.	$.30 ea.

Modern Flush Outlet Installation

Use of the SUTTLE SE-493A Oval Jack with the SE-43A Bracket and SE-19B Face Plate permits flush telephone outlet installations. The SE-43A Bracket is holed to fit any standard conduit box, and is zinc-chromate plated to prevent rusting. Both ends of the SE-43A Bracket are heavily scored so that ears may be removed to fit any cover. Of non-shorting plastic materials, the SE-493A Jack and SE-19B Face Plate provide a modern, attractive appearance. All units are available direct from SUTTLE at Lawrenceville, Illinois or your local distributor in ivory, brown, and blue-beige colors.

SUTTLE EQUIPMENT CORP.

401 N. 15th St., Lawrenceville, Ill.
Phone: Lawrenceville 782

135 S. La Salle St., Chicago 3, Ill.
Phone: DEarborn 2-3108

Offices of dentists and dental surgeons.
Offices of osteopathic physicians.
Offices of chiropractors.
Hospitals.
Medical and dental laboratories.
Health and allied services, not elsewhere classified.

(9) *Legal Services.*

(10) *Educational Services:*
Elementary and secondary schools.
Colleges, universities, professional schools, junior colleges, and normal schools.
Correspondence schools and vocational schools.
Schools and educational services, not elsewhere classified.

(11) *Museums, Art Galleries, Botanical Gardens, and Zoological Gardens.*

(12) *Nonprofit Membership Organizations:*
Business associations.
Professional membership organizations.
Labor unions and similar labor organizations.
Civic, social, and fraternal organizations.
Religious organizations.
Charitable organizations.
Non-profit membership organizations, not elsewhere classified.

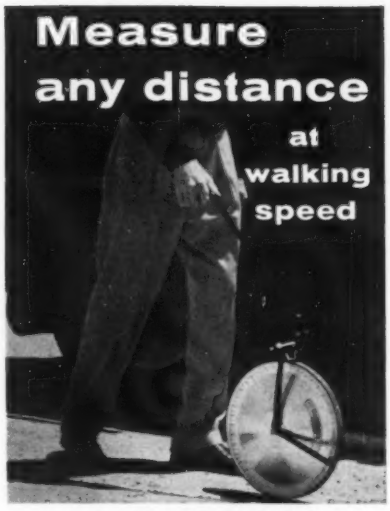
(13) *Private Households from Which Business Activities Are Directed.*

(14) *Miscellaneous Services:*
Engineering and architectural services.
Non-profit educational and scientific research agencies.
Accounting, auditing, and bookkeeping services.
Services, not elsewhere classified.

In the briefest possible review, the series of articles which has appeared in TELEPHONY during 1959 and 1960 has attempted to accomplish: (1) Background information on local and regional economies of interest to the telephone economist, or person acting in that capacity; (2) the creation of at least an awareness of the market for telephone answering instruments in the service sector of the American economy; (3) specific market methodology in promoting the sale of telephone answering instruments in church and similar types of offices; (4) specific information on what remains to be done in covering the entire field, or at least most of it, in the many services already here and those which we may expect in the near future.

Finally, it is of utmost importance to remember that, in marketing telephone answering instruments, the necessary field work and statistical tabulations should not be regarded as a pioneering mission. There is very little in the "pioneering stage" when the potential market is already there, as is most certainly the case for telephone answering devices.

The evolution of the great telephone era has been frustrated by the "missing



records 100,000 ft. *automatically!*

It's So Easy to measure with a Rolatape ...and you save time on every estimating job...no tapes to wind, no helper is required. You get precision-accurate measurements every time.

Records Feet automatically and the accumulated total is always in full view.

Shows Inches, and Fractions of an inch. Wheel is calibrated in inches and fractions for quick easy reading.

Shows Tenths of a foot. Wheel is calibrated in tenths on reverse side for engineers.

Write for information and name of local dealer today!

Rolatape, Inc., 1741 14th St., Santa Monica 2, California

There is a variety of Rolatape Models to suit your needs. See them at your local dealers.

Rolatape
Measuring Wheels

link" of incomplete service. The "missing link" for complete service has at long last been found — the telephone answering instrument.

Eastern Illinois Company Adds Radcliffe as Engineer

The Eastern Illinois Telephone Co., Rantoul, has announced the employment of David V. Radcliffe as company engineer. Mr. Radcliffe will be responsible for outside plant extensions in existing exchanges and for designs of new exchanges purchased by the Eastern Illinois company.

Mr. Radcliffe made area coverage surveys and outside plant designs for numerous exchanges in Illinois while employed by Sloan, Cook, & Lowe during the past six years. His most recent position with this company was that of field engineer.

He had varied experience in the printing trades and in marketing research before starting in the telephone field as a design draftsman for Cyrus G. Hill & Co., where he worked for two years.

Mr. Radcliffe is a native of Chicago, having graduated from Lane Technical High School. He attended Northwestern University.

'Vantage of Brevity

"The more you say, the less people remember. The fewer the words, the greater the profit."—FENELON.

Answers to Questions on Page 38

(1) The operator should answer a new call only when she is ready to accept the order.

(2) No, unless one call has been referred to the supervisor, and she has directed the operator to accept new calls.

(3) Yes.

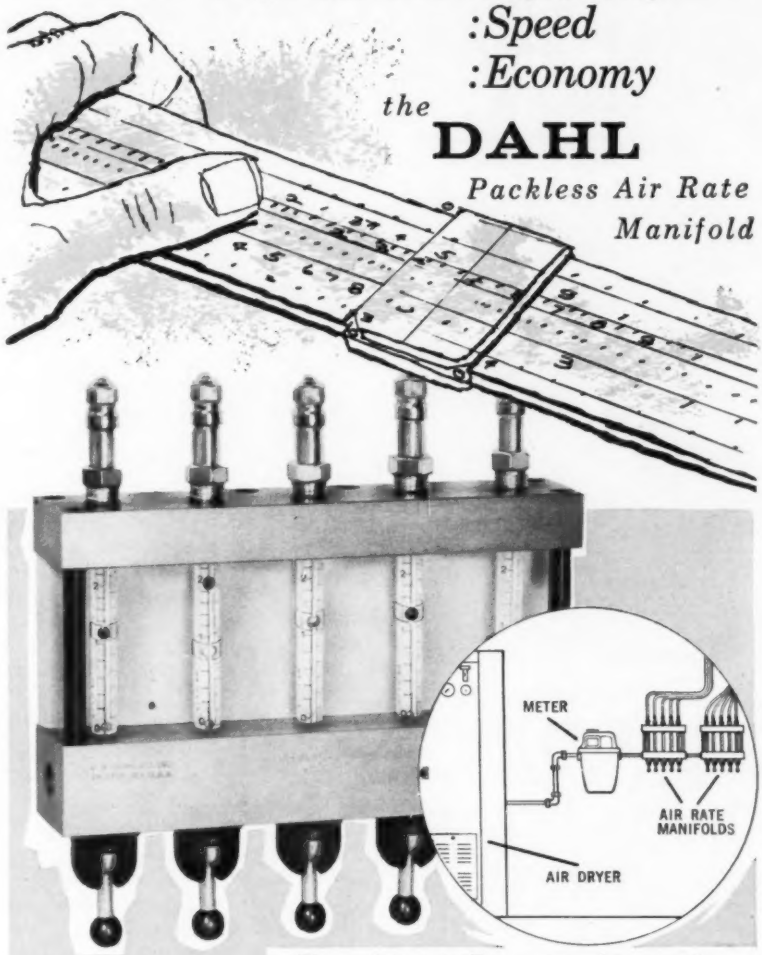
(4) Preference should be given to the following calls:

(a) Calls from long distance.

(b) If both information and intercepted calls are handled at the same position, preference is to be given to an intercepted call, over a local information call.

(5) Answer with "information," and if an immediate response is not received, say "This is information." If you then receive no response, say for example, "Are you calling information?" or "May I help you?" If you still receive no response, disconnect.

Designed for :*Efficiency*
:*Speed*
:*Economy*
the
DAHL
Packless Air Rate Manifold



Individual Air Rate Indicators also Available

This unit is actually a group of 5 separate indicators ganged together into a single, compact unit which requires fewer connections than separate indicators would demand. Each indicator has its own toggle shut-off to provide a means of disconnecting the individual cable from the gas source without affecting the flow to other cables. A pressure testing valve is mounted in the upper block of each unit of the manifold to measure cable pressure or introduce an auxiliary supply of gas on a temporary basis.

The air rate manifold employs both a glass and a stainless steel indicator ball in each gauge. When gas flow exceeds the maximum rating of the lighter glass float (2½ SCFH), the stainless steel float rises giving accurate readings from 2½ to 7½ SCFH. Sliding reference pointers on each gauge give a fast visual check on day-to-day changes in flow rate for each system.

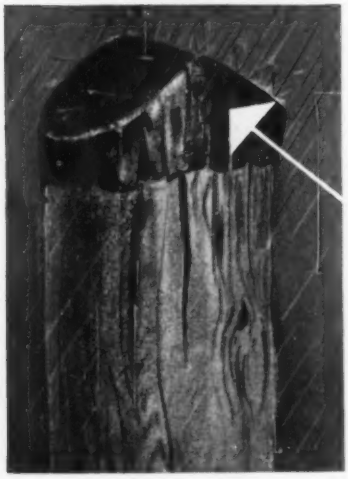
All connections are anodized 24 S-T aluminum.

CALL OR WRITE FOR CATALOG T-1
CLIFFORD 3-9500
86 TUPELO STREET, BRISTOL, RHODE ISLAND

GEORGE W. DAHL COMPANY INC.

VALVES AND CONTROLS FOR COMMUNICATIONS, PROCESS, AIRCRAFT AND MARINE INDUSTRIES

THOUSANDS OF POLES
KEEP THEIR AGES A SECRET



...with low cost
OSMOSE POLE TOPPERS

Fungus decay, plus shrinking-swelling, freezing-thawing of moisture, can wreak havoc with your pole tops. And the damage can quickly extend right down to the crossarm area to cause expensive replacement of the whole pole. Why invite trouble? Take positive action now for long-lasting pole top protection.

The OSMOSE Pole Topper is a reinforced cap of bituminous compound with 5% penta ... the only item of its kind on the market today. *Costs only $1.25 each!* Results indicate it will add up to 20 years of extra "top life". Comes as a simple do-it-yourself unit. Lightweight, easy to carry and clean to handle. Can be applied in only one minute. Fits snug and will not crack or peel. For use on new and salvage poles in the yard, as well as standing poles.

OSMOSE Pole Toppers can be applied under contract or by your own linemen. Keep a supply on every line truck as standard equipment. For complete details, including special Pole Topper Fluid, write: Osmose Wood Preserving Co. of America, Inc., 976 Ellicott St., Buffalo 9, N.Y.

Osmose®
SERVING UTILITIES SINCE 1935

Approve 7 REA Loans Totaling $3,345,000

TELEPHONE LOANS approved by the Rural Electrification Administration during the week of May 2 will aid in providing new or improved service for 6,429 subscribers in six states, as follows:

Wamego (Kan.) Telephone Co., Inc.; $1,119,000; May 2.

Funds will help to improve service for 1,523 subscribers and to furnish initial service to 446 subscribers.

This new REA borrower now furnishes magneto service to 1,276 subscribers. The remaining 247 existing subscribers are served by the Paxico Telephone Co. and the Farmers Telephone Association, Plush. The Wamego company proposes to acquire the Paxico company and access rights to the area served by the Farmers association.

A new headquarters-dial office building is scheduled for construction at Wamego, and a new dial central office will replace the Paxico magneto facilities.

Adolph W. Soelter is president and Francis J. LeBlanc is manager of the Wamego company.

•

Sikes Telephone Co., Glennville, Ga.; $340,000; May 3.

This loan will assist in furnishing initial service to 446 subscribers.

A new headquarters building will be constructed in Glennville to serve the expanded system. The present headquarters-dial office building there will be remodeled for a central office only. A portion of the loan funds will be used to complete the previously authorized system.

Upon completion of construction provided for in its two REA loans, this borrower will be serving 1672 subscribers. Approximately 1,050 subscribers now receive dial service through the Glennville exchange.

•

Hillsdale County Telephone Co., Pittsford, Mich.; $730,000; May 3.

This loan will aid in improving service for 1,026 existing subscribers and in providing initial service to 456 subscribers.

This new REA borrower, a commercial company, now serves the existing subscribers through four magneto exchanges located at Osseo, Pittsford, Prattville and Ransom.

The borrower will retire these facilities upon completion of new construction. This new telephone plant will consist of dial central offices at Prattville and Ransom, and a combined dial central office and headquarters building at Pittsford. Dial service for the Osseo exchange area will be provided from Pittsford.

Upon completion of the construction included in this loan, the borrower will be serving 1,482 subscribers through three dial exchanges.

Ray E. Kelley is president and Ralph Frank is manager of the Hillsdale County company.

•

Clay County Rural Telephone Cooperative, Inc., Poland, Ind.; $415,000; May 4.

These and funds from prior loans will help to enable the borrower to improve telephone service for 406 existing subscribers and to provide initial service to 314 subscribers.

The existing subscribers are now served by the Coal City Telephone Exchange and the Patricksburg Telephone Exchange, which the borrower proposes to acquire. The Coal City Exchange provides magneto service to 68 subscribers in Coal City and 133 subscribers in the surrounding area over subscriber-owned lines. The Patricksburg Exchange provides magneto and common battery service to 205 subscribers. New subscribers to be added include 77 in the Coal City and the Patricksburg areas and 237 elsewhere in the borrower's system.

The loan funds will aid in financing the construction of a new central office at Patricksburg and extensive system improvements. Upon completion of this construction, the borrower will be serving 2,766 subscribers. The system will consist of six exchanges of which three now furnish dial service to approximately 1,130 subscribers.

•

Farmers' Telephone Co., Riceville, Ia.; $346,000; May 4.

Funds will aid in improving service for 992 existing subscribers and in providing initial service to 185 subscribers.

This new borrower, a commercial company, serves the existing subscribers through three exchanges located at Riceville, New Haven and Little Cedar. The Riceville exchange provides common battery service to 734 of the subscribers. This exchange will be converted to dial under the loan. The New

Haven exchange serves 173 subscribers and 85 are served from the Little Cedar exchange. The dial facilities now in operation at these two exchanges will be retained. However, additional outside plant, central office and station equipment will be provided to improve and extend service in these exchange areas.

The loan will also help to enable the borrower to expand its headquarters building in Riceville. Upon completion of construction provided under this loan, the borrower will be serving 1,177 subscribers.

C. C. Pearce is president and manager of the Farmers' company.

•

Union Point (Ga.) Telephone Co.; $228,000; May 5.

This loan will assist in providing facilities to serve 513 new subscribers. Provision is also made in this loan for an increase in the proportion of private and semi-private lines. On completion of construction provided for in this and prior REA loans, the borrower will be serving 1,326 subscribers through dial exchanges at Union Point and White Plains.

•

Chariton Valley Telephone Corp., Bucklin, Mo.; $167,000; May 6.

Funds will help to furnish initial service to 53 subscribers and to improve service for 69 subscribers. In order to provide this additional service, the borrower plans to enlarge its territory. Provision is also made in the loan for new headquarters facilities in Bucklin.

On completion of the construction provided for in this and prior REA loans, the borrower will be serving 5,497 subscribers. The system will consist of 15 exchanges, of which 12 now furnish dial service to approximately 4,400 subscribers.

Cal. Highway Authority Asked To OK Freeway Telephones

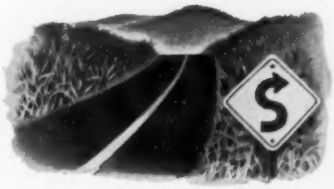
The Los Angeles County Board of Supervisors plans to send a formal request to the California Division of Highways to have telephones provided on California freeways.

Kenneth Hahn, county board member who submitted the proposal, said that the telephones are needed so that stranded motorists can call for help.

"We spend millions of dollars for rights-of-way and for construction of freeways," he stated, "but not one cent for a means of communication for the driver who may need for himself, anything from gasoline to an ambulance when he is involved in trouble in high-speed traffic."

Whatever your brush problem

Line?



Roadside?

Right-of-way?

WEEDONE can solve it!

With the right background—Chemical control of weeds and brush has developed along established lines of procedures and practices. Amchem initially pioneered the major advances in the field, has originated many of today's accepted procedures and products for efficient, economical weed and brush control. Your problems are in *experienced* hands when you hand them to Amchem!

With the right approach—Amchem's corps of weed and brush specialists are basically application specialists. Combining comprehensive theoretical and practical experience they are able to offer all industry a realistic approach to *any* weed or brush problem. These specialists have developed a variety of efficient weed and brush eradication programs over thousands of miles of line, roadside and right-of-way areas once choked and inoperable due to infestation.

With the right product—Amchem's tremendously diversified product line is your assurance that the right weed and brush killer is available and will be utilized for your specific problem. Weedone Brush Killers, for example, have been used in the field for years and proven eminently successful in eliminating weeds and brush wherever they are a problem. Why not bring your problems to Amchem?

Amchem and Weedone are registered trademarks of Amchem Products, Inc.

AMCHEM PRODUCTS, INC.
AMBLER, PA.

Please send me copies of your "Brush Control" brochure and full information on the uses of Weedone Brush Killers.

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

AMCHEM

WEEDONE

BRUSH KILLERS

another chemical development of
Amchem Products, Inc.
(Formerly American Chemical Paint Co.)
St. Joseph, Mo. • AMBLER, PA. • Niles, Calif.

"BEST"

for keeping that new look on your telephone instruments—black and colored.

NEW General Telephone Cleaner

After two years of hard work by our chemists, this product has been perfected. It will remove all stains from the new plastic telephones . . . does not affect the cases in any way . . . is non-caustic, non-corrosive and non-inflammable . . . will not injure hands using it . . . makes cases look like new

An Ideal Pair

New General Telephone Cleaner coupled with Magnolia Glayz-It Telephone Refinisher have been demonstrated in over 60 exchanges with the result: orders placed promptly. Care to place yours now?

MAGNOLIA CHEMICAL CO., INC.
Chicago • Lafayette • Indiana
Atlanta • Dallas • Los Angeles

Distributed by

LEICH SALES CORP.
427 West Randolph Street
Chicago 6, Ill. RAndolph 6-5441

DDD REQUIRES EDUCATION PROGRAM

Continued from page 20

weeks. "Dial the Miles" was also telecast on a local television program.

Use of outdoor billboards and car cards began in March and ran into June. DDD truck signs were also used just prior to and following the conversion.

A booklet, combining the Blue Book with DDD instructions, was mailed to customers late in March.

Open Houses for Key Groups

Open houses were scheduled for key groups and the public. PBX operators and their bosses were invited to a central-office tour, which was followed by a dinner and a lecture-demonstration.

Heavy toll users and business men were contacted personally, with interviews beginning in January and continuing up to the conversion.

An unattended Central Automatic Message Accounting (CAMA) display was featured in local theaters and banks. This display was used in special DDD programs for Chattanooga high schools, where "Dial the Miles" was shown and the lecture-demonstration presented.

A Metropolitan Conversion

One of the most extensive public relations programs ever executed by Southern Bell accompanied South Florida's Sept. 20, 1959 DDD conversion in Hollywood and Greater Miami.

It was the largest single area yet converted to Direct Distance Dialing by Southern Bell.

Climax of the public program came on conversion day when Miami's two daily newspapers published full-color supplements devoted exclusively to DDD.

The public program began in the fall of 1958 under the direction of division department heads working closely with the division public relations committee and a special conversion committee. A 13-member sub-committee was responsible for conducting the publicity and education program.

Basically, the program was carried out through dozens of news articles and lecture-demonstrations, special editions

One of the many public displays used in the Miami DDD public information program.

of the *Bell Tel News*, slide films, talks and movies, such as "Dial The Miles." Radio and television advertising were also used extensively.

Information in Directory

One outstanding aspect of the Miami program was that no customer instruction booklet was prepared. Instead, the telephone directory was used as the primary source of public instruction. All advertising and public information material emphasized the directory as the basic source for dialing instructions.

More than 500,000 directories with detailed instructions on how to use DDD were distributed to homes, offices, stores and industrial plants. The directory cover promoted the conversion and the date it would become effective.

Another feature was the formation of a speaker's bureau in which more than 100 telephone people from all departments gave hundreds of talks and lecture-demonstrations before civic, school, church and other groups. A single lecture-demonstration was seen by 8,000 people attending a Miami Boy Scout camporee.

Four weeks prior to cut-over, a press luncheon was held to inform newsmen, and a call was dialed directly to Sen. George Smathers in Washington. Two days before conversion, 200 leading businessmen from the Miami area attended a dinner which featured a talk by Southern Bell President Ben S. Gilmer.

Paid-media advertising was started about two weeks before the cut-over. Advertising was concentrated in newspapers for 10 days, then it was focused over television and radio. Radio and TV advertising also continued several days after the conversion as a reminder and follow-up.

Employe education and information, of course, were included in the over-all program. Motion pictures, group meetings, periodic bulletins and slide films were the primary means of informing employes.

Brings Good Results

It is evident that a lot of hard work in preparation, planning and coordination goes into introducing DDD to an area. It is a big investment in time, manpower and money. But the results in Southern Bell have been well worth the effort, even though DDD is still a comparative newcomer to the South.

All depends on the smoothness of the cut-over. If the people don't use DDD—and use it right—you're sunk, Southern Bell reasons. It takes information and advertising and publicity to assure this. And when it happens, the results can

- Low cost—light weight—portable.
- Stampings has over five year's experience in building trouble-free, productive trenchers.
- More in use than any other in its class.
- Shipment made 1 day after order.
- Completely assembled, ready to work.
- Pow-R-Spade digs straight, curves, angles without preliminary set-up.

Pow-R-Spade Guarantees Product and Performance!

FOR COMPLETE DETAILS—NO OBLIGATION

CALL COLLECT
ROCK ISLAND
8-9527
or mail coupon

STAMPINGS, INC., Dept. N
Rock Island, Illinois

Please send details on POW-R-SPADE

Name_____
Company_____
Address_____
City_____ State_____

- Low cost per foot—more profit per job.
- Minimum of working parts—hardly any maintenance required.
- Cuts neat trenches—easy back-fill.
- Digs trenches 3" wide to 24" deep—or 4" wide to 18" deep.
- Dealers in principal cities.

POW-R-SPADE IS MADE BY STAMPINGS, INC.

PWC

TELEPHONE CABLES

For Every Application

BURIED

TYPE 167

Specifically designed for direct earth burial by trenching equipment and ordinary methods as well as aerial and duct service.

Conforms to REA Specification PE-23 and IPCEA, Type I S-56-343.

Available in No. 19, 22, 24 and 26 AWG from 6 to 400 pairs.

Fully color coded with all pairs guaranteed.

Inner polyethylene jacket for mechanical and electrical protection.

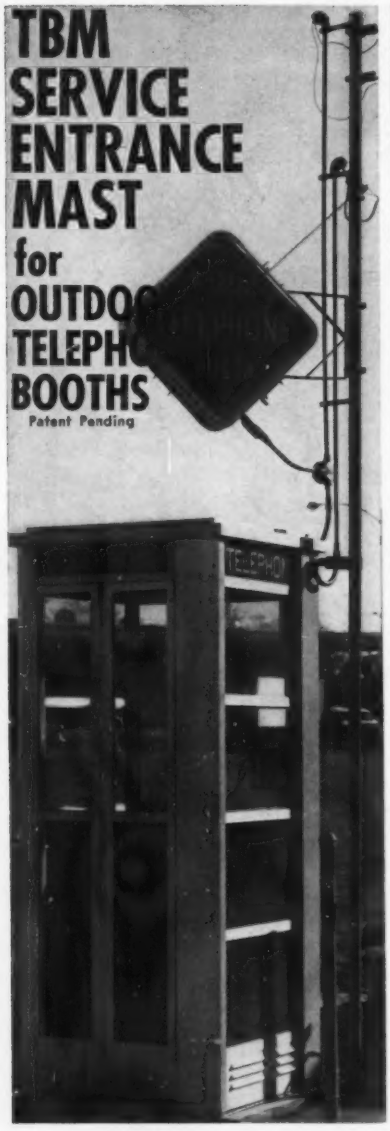
Longitudinal copper shield corrugated on large diameter cables for flexibility.

5 mil copper tape on standard cable.

10 mil copper tape on gopher protected cables.

Black polyethylene outer sheath.

THE
PLASTIC WIRE & CABLE CORPORATION
JEWETT CITY, CONN.



Model TBM Mast provides complete service entrance facilities for outdoor telephone booths with the definite plus advantages of lower cost and easier installation. Raises power lines for specified ground clearance.

FITS MOST BOOTHS
Meets Code Requirements

LOOKS BETTER The TBM Mast is engineered for the job. Adds to the appearance of any booth.

LASTS LONGER Heavy gauge steel tubing used throughout for life-time service. Only heavy duty fittings used.

COSTS LESS Actual installations show savings up to two-thirds over conventional installations.

REMOVABLE. Can be moved from one location to another. Simply disconnect lines and pull mast out of ground sleeve.

Utility Service Co., Inc.
1620 THIRTEENTH ST. RACINE, WISCONSIN

be credited in no small degree to the effectiveness of the public relations programs.

In the next few years, DDD facilities will become available to the great majority of Southern Bell telephone customers. Other service improvements will also be introduced to the public.

In every case, a sound public relations program will continue to play a significant part toward achieving customer understanding, acceptance and usage of the new services and equipment.

VNL . . . . BASIC TESTS

Continued from page 25

the far end. The Wheatstone Bridge is then connected to the two shorted side pairs at the near end.

Two Frequency Attenuation

Loading irregularities will result in abnormally high losses, especially at the higher frequencies. Test frequencies are 1,000 cycles and about 80 per cent of the cable's cut-off frequency. Impedance matching coils are required to match the oscillator and transmission measuring set to the cable impedance. After the sets have warmed up, connect the oscillator into the precalibrated measuring set and adjust the oscillator output to zero db at both frequencies. The oscillator can then be connected through the matching coil to the cable. At the far end a tester will read the tones through a matching coil and a transmission measuring set. The loss of the two coils is subtracted from the readings and the effect of temperature should also be considered before arriving at an actual figure. See *Chart 1* for the required values. The transmission test need only be done in one direction.

Structural Return Loss

This test will indicate whether any load coils are missing or improperly wired and that the load coil spacing is uniform. The known characteristics of a balancing network are balanced against the cable pair under test. A good pair will balance well and return very little reflected power resulting in a high return loss figure. Reflected power with its resulting low return loss figure can cause echo and a hollow sounding or, worse, a singing circuit. The test arrangement is illustrated in *Fig. 2*. The balancing and terminating networks and hybrid coil are a type that matches the cable impedance under test. Your telephone equipment manufacturer should be able to advise you which coils and networks are to be used with different cable types and impedances. To calculate the amount of capacity required in the networks it is necessary to know the length of the cable end sections and the basic end section or percentage of a full section that is built into the network.

Let's assume a 19H88 cable with a full loading section of 6,000 feet, has a balance end section of 2,520 feet and the manufacturer says his network has a .18 basic end section. The full-section capacity of this 19H88 cable is .0704 *(Chart 1)*:

$$\text{Network Capacity} = \left\{\frac{2520}{6000} - .18\right\} \times .0704 = .017 \text{ mfds.}$$

This .017 mfds. would be strapped into the network at the testing end of the cable.

At the far or terminating end, the network is similarly built out to make

LOADING CODE DES.	DISTANCE BETWEEN COILS
A	700 ft.
B	3,000
C	929
D	4,500
E	5,575
F	2,787
H	6,000
X	680
Y	2,130

Chart 2

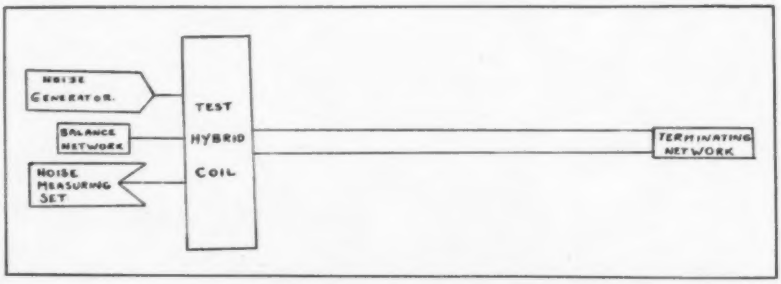


Fig. 2. Basic return loss arrangement. Networks are adjusted to make the end sections look like .8 of a full section.

the end section look like a full section. On checking the cable installation records we find the distant end section is 2,662 feet, therefore—

$$\text{Network Capacity} = \left\{\frac{6000}{6000} - \frac{2662}{6000} - .18\right\} \times .0704 = .026 \text{ mfds.}$$

The network at the distant terminating end of our cable will need .026 mfds. strapped into it.

The loss of the hybrid coil can be eliminated if the two-wire output is shorted and the noise generator output is adjusted to give a reference value on the noise measuring set. Let's assume the generator is adjusted to read 70 on the noise measuring set. When the short is removed and the terminated cable is connected to the hybrid, a different reading will be noted. When this reading is subtracted from our reference value of 70, the result is the structural return loss. The minimum requirement is an average value of 22 db, with not more than 16 per cent less 20 db and none less than 16 db. This requirement represents an average of 22 db with a distribution grade of 2 db.

These tests are designed to indicate irregularities in the line facilities that would impair the ability of a circuit to work at the more stringent VNL requirements. While we have confined our discussion to cable it is as important to be sure that open wire is free from brush, worn connecting jumpers, cracked insulators, etc., and that it is properly transposed.

Circuits containing open wire can be expected to produce slightly lower return loss readings than cable circuits due to the lower attenuation of open wire.

In Part 2 of this article we will look at impedance compensators, over-all tests and more about good transmission.

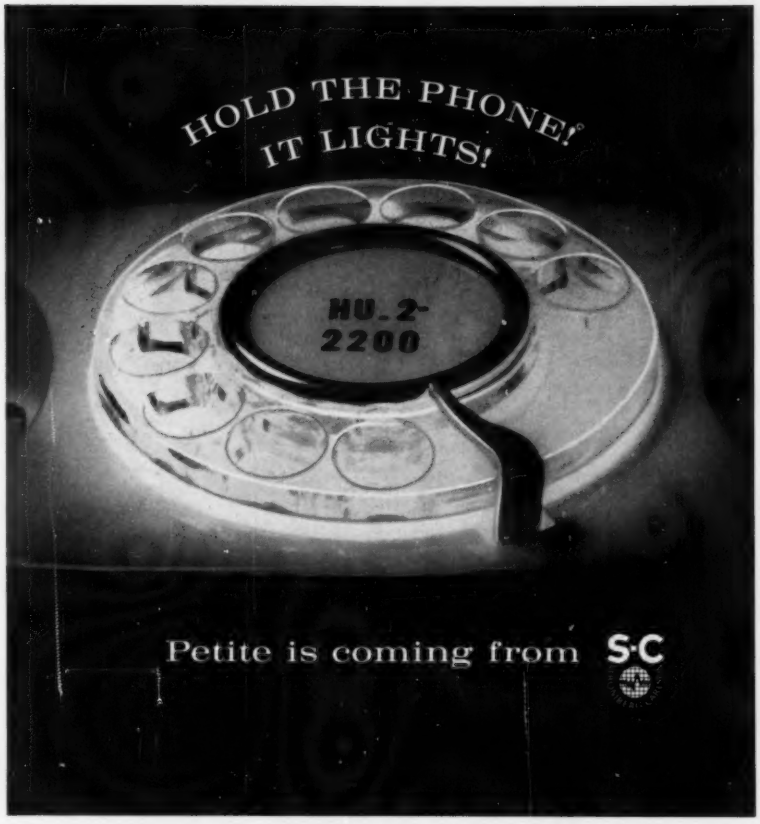
(To Be Continued)

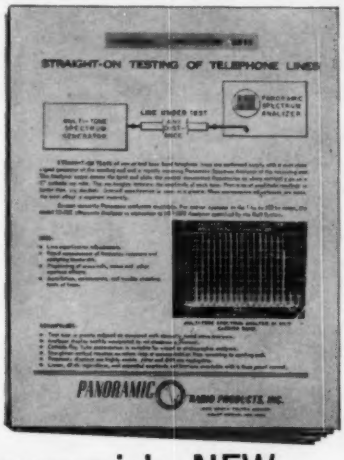
IN THE NATION'S CAPITAL

Continued from page 18

the lusty 3.5-billion-dollar baby which Dave Hamil is guardian for today."

Of course, there still remains the question about expanding or continuing REA in view of the fact that the farms are now virtually all electrified and—while just as comfortable as anywhere else—the farm population is *still* declining, and the number of farms is *still* decreasing. Paradoxically the farm surplus continues to increase (from 2.5 billion to 9.2 billion dollars since 1952) as fewer farms produce more and more crops, over and above consumer use. In





HOW TO SPEED..

- ☐ **Line Equalization Adjustments**
- ☐ **Frequency Response & Bandwidth Measurements**
- ☐ **Installation, Maintenance and Trouble Shooting Tests**

Send today for Panoramic's NEW Application Note "Straight-On Testing of Telephone Lines"

Contains complete information on ONE-STEP LINE EQUALIZATION TESTS, with multi-tone straight-on method and a rapid scanning Panoramic Spectrum Analyzer.

dependable CERTIFIED SPECIFICATIONS for accurate data

the pioneer is the leader

Panoramic
RADIO PRODUCTS, INC.

Write, Wire, Phone TODAY for your copy

PANORAMIC RADIO PRODUCTS, INC., 564 So. Fulton Ave., Mount Vernon, N. Y.
Phone: OWens 9-4600 • Cables: Panoramic, Mt. Vernon, N. Y. State

your best buy...

CHANCE LAMINATED PIKE POLES

here's why!

SAFETY POINT

Gimlet point can be removed and reversed to prevent damage to equipment, to the point itself, and possible injury to workmen.

PLASTIC COATED

Chance Pike Poles are sealed in Maplac* a tough transparent plastic that increases pole life—protects against warping and splintering.

*Trade Name

LAMINATED

Poles are of laminated construction, with wood grains carefully glued at cross angles for greater rigidity and warp resistance.

STEEL BUTT RING

Every Chance Pike Pole is reinforced at the butt end with a heavy steel ring . . . guards against chipping and splintering.

TWO SIZES . . . Chance Pike Poles are available in 2" and 2¼" diameter sizes . . . in a variety of lengths.

CT58-11

A. B. CHANCE CO.

GENERAL OFFICES: CENTRALIA, MO.

A. B. Chance Co. of Canada, Ltd., Toronto

the face of this decline in the number of farms and people living on them, the number of Agriculture Department employes has jumped from 67,000 to 86,000 since 1952.

REA Administrator Hamil said that co-op pioneers, the local people who organized the cooperatives, "deserve the greatest share of the credit for the success of rural electrification. It may be too early to assign a place in history to the rural electrification program, but I believe that it will be recorded as an undertaking as significant to the development of America as the transcontinental railroads or our road and highway network.

"By helping to rub out the sharp line that used to exist between town and country, rural electrification has drawn all of us closer together. It has been another great step forward in uniting all of our people into one nation."

Highlights of REA's two-hour anniversary program included concerts by the U. S. Army Chorus and the U. S. Marine Band, which premiered "The REA Anniversary March," by Bernard Krug, an REA employe. There also was a premiere of "The REA Story," a new color motion picture produced by the agency. It depicts some of the ways in which rural power has changed life in the country.

Ohio Toll Cost Studies

The strictly procedural decision of the Ohio Public Utilities Commission to permit a mileage study of the facilities of General Telephone Co. of Ohio with respect to their use in toll call exchange with Ohio Bell Telephone Co. is an interesting step in the Bell *versus* Independent toll compensation problem. As readers of this department have already been informed, General Telephone companies in Ohio, Kentucky, and Florida have asked their respective state commissions to make an adjudication of the propriety of intrastate toll separation procedures as they affect toll call exchange with Bell System facilities. Other Independent companies are reported to be considering similar requests.

This brings into the open, or at least before a regulatory forum, a thorny problem of Bell-Independent relationship which has heretofore been settled on the basis of private negotiation. Apparently such negotiations have broken down, at least in the three cases now about to be determined by state regulatory authorities. The argument, of course, grows out of methods employed,

The Elyria (O.) Telephone Co. is running out of space to display all the awards the company has won. Weldon W. Case, president and general manager of the company, is shown with the large peg board panel in the directors' room which has been used to display the awards. Plaques have come so fast, however, that there is no room for more. Mr. Case is holding the fourth plaque the company has received for outstanding community service, awarded at the annual convention of the Ohio Independent Telephone Association. At this convention, the company was also given a safety award by the Industrial Commission of Ohio. For three successive years the Cleveland Advertising Club has given the company plaques for outstanding achievement in advertising, and there are two awards from the Newspaper Advertising Executives Association of America for outstanding newspaper advertising. A. F. Hardman is the company's public relations director.

more than principles involved. The United States Independent Telephone Association, at considerable expense and time, has developed a procedural manual which it thinks squares with over-all regulatory principles approved by the NARUC (National Association of Railroad & Utilities Commissioners). The Bell System has done likewise.

But it is not such a simple matter as answering the question of which book to use. In the Ohio case, Ohio Bell said that a cost study of the General of Ohio exchange circuit plant would show just how great a proportion of revenue from exchange toll calls should go to General as compared with Ohio Bell. General Telephone Co. of Ohio did not think that the results would even be proper evidence or pertinent to the issue involved.

The Ohio commission has so far not committed itself. It did, however, grant the motion of Ohio Bell, in order to develop the facts relating to the "proper ratio of the mileage exchange circuit plant used for a local call to the mileage of exchange circuit plant used for a toll call." This is a complicated problem in which conclusions must be held in abeyance until all the evidence is in—all the proper evidence, that is.

That seems to be the position taken by the Ohio commission so far. It has not said that it would accept or approve the results of the pending study. It merely told Ohio Bell to go ahead and do it; and see what happens.

One objection by General Telephone of Ohio was that the proposed study, now being made, injected a different standard of measurement from that previously used as well as methods now used under the Separations Manual. General Telephone says that the allocation of exchange circuit plant on a message-minute basis has been the method generally used. The pending study will be on a circuit-mileage basis.

Elsewhere in this Bell *versus* Independent argument, West Coast Telephone Co. seems to be the first Independent—not a member of the General Telephone System—to raise the same question. This comes up in the state of Washington in connection with a complaint by West Coast Telephone Co. against Pacific Telephone & Telegraph Co. involving the toll conversation allocation issuance.

FCC Nominee Withdraws

The Federal Communications Commission is like "Old Faithful"—that geyser in Yellowstone Park that spouts hot water regularly by your watch. The latest hot water involving the FCC is one of President Eisenhower's nominees who did not even get his chair

CONDEX* MULTIPLE CONCRETE CONDUIT

Special fittings—miters—short lengths—expanded web sections available, also adapters to claytile, transite and fiber duct.

9 DUCT FORMATION ON JOB SITE

American Concrete Pipe Co., Sub. of Am. Pipe and Construction Co., 2025 S. Seventh St., Phoenix, Ariz. Tel: AL 2-7566
American Pipe and Construction Co., 4635 Firestone Blvd., Southgate, Calif. Tel: LOrain 4-2511
American Pipe and Construction Co., 101 Alquire Rd., Hayward, Calif. Tel: JEfferson 7-2972
American Pipe and Construction Co., 518 N.E. Columbia Blvd., Portland, Ore. Tel: BUtler 5-2531
Col. Concrete Products Co., Div. of Utah Concrete Pipe Co., Denver, Colo. Home Office: Ogden, Utah. Tel: EXport 9-1171
Concrete Conduit Corp., 130-01 Northern Blvd., Corona, N. Y. Tel: ILlinois 7-1515
Chicago Pre-Cast Products Corp., 29W629 North Aurora Rd., Naperville, Ill. Tel: Naperville 2700—2701
Eastern Pre-Cast Corporation, 675 Main St., Tullytown, Pa. Tel: Windsor 9-3750
Elmore Concrete Products Co., Division of North Star Concrete Co., Elmore, Minn. Tel: Elmore 52
J. E. Evans Concrete Products Inc., Cleveland, Ohio. Home Office: Indianapolis, Ind. Tel: WAlnut 5-5301
J. E. Evans Concrete Products Inc., Shelbyville, Ind. Tel: WAlnut 5-5301
Neff Concrete Products Co., 711 Section St., Danville, Ill. Tel: Danville 1016
PRE-CON Limited, Orenda Rd., Brampton, Ontario, Canada. Tel: HUdson 1-3492 (Toronto)
Pre-Con of Quebec, Ltd., Montreal, Quebec, Canada. Home Office: Brampton, Ont. Tel: HUdson 1-3942 (Toronto)
T.E.L. Pre-Cast Products Corp., 1 Industrial Ave., Edgewater, Florida. Tel: GArden 8-9881
Utah Concrete Pipe Co., 379—17th St., Ogden, Utah. Tel: EXport 9-1171
For information regarding CONDEX* Multiple-Duct Concrete Conduit, call or write your local producer, or the parent company.
*Registered Trademark

CONDEX
GAGNE ENTERPRISES, INC.
29W 629 NORTH AURORA ROAD
NAPERVILLE, ILLINOIS
NAPERVILLE 2700-2701

GENERAL MACHINE PRODUCTS COMPANY, INC.
Old Lincoln Highway at Pa. Turnpike, Trevose, Pa.

C-R POWER REEL

SLACK PULLER

CABLE FEEDER

GMPCo

AERIAL TENTS
CABLE BENDERS
CABLE BLOCKS
CABLE LASHERS
COAXIAL CABLE TOOLS
LASHING WIRE
CLAMPS AND GRIPS
PORTABLE & POWER REELS

Distributed by GraybaR ELECTRIC COMPANY

PRESSURE TESTING KIT

COMPOUND

B, C, D, E, & G CABLE LASHERS

Special Purpose Tools To Specifications — Catalog on Request

Over 600 various items of Line Construction Tools, Maintenance & Pressure-Testing Equipment in stock for immediate shipment

IT'S NEW!

2000 MC MICROWAVE RADIO TERMINALS

New, low-cost microwave equipment for the 2 KMC band, Budelman type 14/CW, employs MONO-BLOC head-ends and final amplifiers for better stability and insurance against early obsolescence.

- 30 voice channel capacity
- 5 watts output
- 0.0005% frequency stability
- ± 200-KC FM
- wide-band (0.3-150 KC)
- low initial and maintenance costs

Write for Bulletin 1260

BUDELMAN
ELECTRONICS CORP.
375 FAIRFIELD AVENUE
STAMFORD, CONNECTICUT

DISTRIBUTED BY

BUCKEYE TELEPHONE & SUPPLY CO.
1250 KINNEAR RD., COLUMBUS, OHIO

THE ENGINEERING SERVICE
P.O. BOX 178, BUTTE, MONTANA

NELSON ELECTRIC SUPPLY CO.
1123 SLOCUM ST., DALLAS, TEXAS

SOMERSET TELEPHONE & SUPPLY
NORTH ANSON, MAINE

TELE-RADIO SYSTEMS LTD.
3633 DUNDAS ST., TORONTO ONT.

EXPORT: WESTREX, INC.
111 EIGHTH AVE.
NEW YORK CITY

BUDELMAN bec

warm. This was Edward K. Mills Jr., who has asked President Eisenhower to withdraw his nomination because some question has been raised about his ownership of interest in a trust fund which might conceivably result in a conflict of interest with his duties as a member of the FCC. The connection is pretty remote, but obviously Mills is fed up to there with Congressional nit-pickers, who are cashing in on the Roman holiday now going on in Washington for anybody who has a dead cat they would like to throw at the federal regulatory commissions.

Mills, an outspoken critic of television programming, was named to the scandal-scarred commission on Mar. 24. His appointment was hailed by those who thought the FCC should not hesitate to ride herd on the industry. The reason for his withdrawal now is a legal one. He has a technical "conflict of interest" that the Justice Department believes cannot be squared with the Communications Act.

Mills happens to have an interest in a trust fund set up by his father and uncle years ago. He and his brother are lifetime beneficiaries of the trust but have absolutely no control over it. The trustee is a bank. The trust owns stock in two companies in the communications field, General Electric and Westinghouse, and apparently, for tax or other reasons, sale of the stocks at this time would be financially injurious to the trust. Because others, in addition to Mills, benefit from the trust, the trustees feel they would not be doing their duty if they sold the stock. They feel they might be violating the law of New Jersey, where the trust is situated. To get around this problem, Mills offered to assign his income from the GE and Westinghouse stock to charity during his term on the FCC. His share of the dividends comes to about $1,300 annually.

Justice Department lawyers, who studied the matter, decided that this would still leave him with an "interest" in terms of the statute. They reasoned that he would benefit from the stock when he left the commission and hence the value of the shares would always matter to him. Actually, the Justice Department never made a formal ruling, as was requested by the Senate Commerce Committee. Mills was informally advised that his situation could not be reconciled with the statute.

Although Mills has already written to the President, administration officials

Convention Calendar

1960

Association	*Date*	*City*	*Hotel*
Pennsylvania	June 6, 7 and 8	Bedford	Bedford Springs
California	June 8, 9 and 10	San Francisco	Fairmont
Washington-Oregon*	June 16 and 17	Portland	Sheraton Portland
New York	June 20, 21 and 22	Schroon Lake	Scaroon Manor
Alaska	Aug. 15, 16 and 17	Sitka	Elks Club Rooms
Tennessee	Sept. 7 and 8	Nashville	Hermitage
Arkansas	Sept. 12 and 13	Hot Springs	Velda Rose Motel
Michigan	Sept. 12 and 13	Mackinac Island	Grand
Rocky Mountain	Sept. 14, 15 and 16	Denver	Hilton
West Virginia	Sept. 19, 20 and 21	Morgantown	Morgan
Nevada	Sept. 21, 22 and 23	Ely	Nevada
New England	Sept. 25, 26, 27 and 28	Bretton Woods, N. H.	Mt. Washington
North Carolina	Oct. 3 and 4	Pinehurst	Carolina
USITA	Oct. 9, 10, 11 and 12	Chicago	Conrad Hilton
South Carolina	Oct. 24 and 25	Clemson	Clemson House
Virginia	Oct. 27 and 28	Roanoke	Roanoke
Oklahoma	Nov. 9 and 10	Oklahoma City	Skirvin
Georgia	Nov. 9 and 10	Atlanta	Biltmore
Alabama	Nov. 14 and 15	Birmingham	Thomas Jefferson
Florida	Nov. 28 and 29	Jacksonville	Robert Meyer

*Joint Convention

are so eager to have him on the FCC that they are still trying to find a way out of the problem. FCC Chairman Ford has suggested a new legal theory. The Justice Department promised to take a look at it.

The FCC itself appears to be shifting its position regarding its authority to control over-all programming on radio and TV. FCC commissioners early this month instructed the commission staff to formulate a rule-making document to revise application forms which call for program information. The additional information, it is understood, may be needed in order to carry out programming determinations.

This apparent policy shift is due no doubt to the effect of Congressional investigations of "payola" and rigged quiz shows. The FCC has conducted an eight-week inquiry into the subject of programming during which it heard over 100 witnesses representing educators, network officials, religious leaders, etc.

The FCC may be trying to beat Congress to the draw on program controls. Chairman Harris (D., Ark.) of the House Interstate Commerce Committee has already indicated that his group will start soon after May 15 to draw up legislation to give FCC more authority over TV and network broadcasting practices.

Before any over-all programing responsibility can be taken on by the commission, however, a determination of just how far such surveillance practices should go must be made. It is understood that some commissioners feel that the present review of radio, TV programing should continue and be enlarged. These commissioners feel that the FCC must make some comparison between program promises and performances. Other commissioners, while agreeing that authority exists for consideration of over-all programing, balk at any hint of program control after a network gets the go-ahead sign from the commission.

Pole, Crossarm Treatment Up 3 Per Cent in 1959

The U. S. Department of Agriculture (USDA) announced on May 2 that though the volume of wood treated by the wood preserving industry in 1959 hit the lowest ebb in 25 years, the volume of poles and crossarms treated increased 3 per cent. Treatment of all other products such as piling, fence posts, lumbers, and timbers dropped.

This preliminary USDA report is based on statistics from 327 of the 377 known wood treating plants in the country. Since these represent most

Announcing... the NEW! IMPROVED BUS BROWN MODEL 468R 12 HP TRENCHER! (3" to 12" wide trench)

THE BIGGEST LITTLE TRENCHER IN THE WORLD — TRENCHING THE WORLD AROUND

The digging chain and cutters have proved to be unequaled in performance and durability.

Drives on all 4 wheels while digging; rear wheels when in transport gear.

Boom can be raised to upright position.

Adjustable Auger leaves clean trench, depositing dirt on each side of trench for easier backfill.

Balancing on front wheels for easy steering while moving forward.

PATENTED

DESIGNED FOR MAXIMUM EFFICIENCY AT MINIMUM COST!

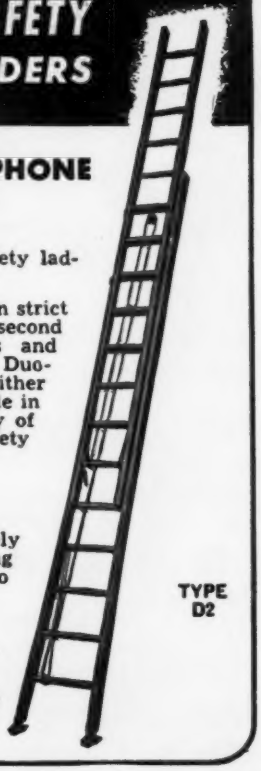
MAXIMUM EFFICIENCY
The Model 468R 12 HP Trencher is small, compact, rugged and easy to maneuver. It is designed to give you maximum efficiency due to faster digging speed.

MINIMUM COST
Only one operator is needed . . . digging speeds are greater . . . and the simplicity and compactness of design lowers maintenance cost, making your trenching less expensive.

Write today for complete information!

BROWN MANUFACTURING CO., INC.
WOODBINE, IOWA

TAKE A BIG STEP TOWARD SAFETY WITH DUO-SAFETY LADDERS



... CUSTOM DESIGNED FOR TELEPHONE MAINTENANCE WORK!

Here's one fine example of the many Duo-Safety ladders ideal for telephone maintenance work.

Type D — a truly great extension ladder built in strict accordance with safety regulations. Rungs are second growth hickory, reinforced with steel rods and equipped with special automatic locks and Duo-Safety's famous Safety Shoes. Made with either straight or parallel side rails, Type D is available in one, two or three sections — in a large variety of sizes. Write for free catalog on all Duo-Safety ladders.

IMMEDIATE DELIVERIES!

Duo-Safety ladders will be shipped immediately upon receipt of order! A planned stock-piling program assures really fast action — there's no delay the Duo-Safety way!

TYPE D2

For Information, Contact Your Supply House, or

DUO-SAFETY LADDER CORP.
809 Ninth Street • Oshkosh, Wisconsin

NEW KLEIN CATALOG

Here is the 1960 edition of the Klein catalog illustrating and describing the complete line of Klein tools and equipment for electricians.

It contains many new additions to the Klein line—including Replaceable Gaff Climbers, a newly developed Hot Line Grip and an even wider range of pliers for every purpose.

The Klein Catalog 103 will be of interest to linemen, electricians —good workmen everywhere.

Write for yours.

Foreign Distributor: International Standard Electric Corp., New York.

Mathias Established 1857 KLEIN & Sons Chicago, Ill., U.S.A.
7200 McCORMICK ROAD • CHICAGO 45, ILLINOIS

of the large plants, the information is about 95 per cent complete. Data are subject to revision in a final and more detailed report which will be published later.

The report, which also covers use of various preservatives, shows that use of creosote decreased 9 per cent from 1958. The use of pentachlorophenol increased 20 per cent; Tanalith use increased 18 per cent; and Celcure increased 40 per cent. Use of all other preservatives decreased, according to USDA.

United Companies Sponsor Visiting Chinese Engineer

Under the auspices of the Federal Communications Commission, the United Telephone Co. of Kansas, Inc. and United Telephone Co. of Missouri, subsidiaries of United Utilities, Inc., have had the opportunity to sponsor a three-month study program for Han-Lin Lin, senior planning engineer, of the Taiwan (Formosa) Telecommunication Administration of Taipei, Taiwan, China.

Mr. Lin, a graduate of the Chingkong University of Formosa, and of a Japanese engineering college, brought a varied background of telephone construction and engineering experience to this country.

The rehabilitation of the Taipei automatic telephone exchange, which was destroyed during World War II, was completed under his supervision. He was responsible for the design and installation of this system, which grew to over 60,000 stations, and has been engaged in planning for other major conversions throughout Taiwan.

During his stay with the United companies, Mr. Lin traveled extensively through the Kansas and Missouri areas, examining and studying the various types of dial central office equipment presently in service. He worked closely with United's Engineering and Plant Departments during the installation stage of several dial exchanges.

Mr. Lin distinguished himself in his public appearances and visits to midwestern cities. He is keenly alive to western culture and enjoys speaking with the public and telephone employes on all subjects relating to telephony. His ability to speak six languages, including an excellent command of English, illustrates his eagerness to learn.

Mr. Lin, along with another engineer and a young telephone operator also from Taiwan, is scheduled to spend nearly a year in the study of American telecommunication techniques.

On his departure from the United Companies, he was to train with an Independent equipment supplier and later to be a guest of the Bell System before returning to Formosa.

After observing our country, Mr. Lin remarked: "All Americans I have met are very friendly . . . they always look cheerful and modest . . . besides joking very much. They are indeed peace-loving people, and give me what I have never experienced elsewhere in my life, a feeling of being an amiable foreigner. Their standard of living, in my personal opinion, is at the highest level attainable . . . and so far as I know, they have the most fortunate way of life in the world."

J. G. Kreamer, president of the United Companies stated: "We have found Mr. Lin to be very interesting and educational, and the opportunity to learn of the people of Taiwan and their customs is appreciated. We, of the telephone industry, through the sponsorship of such talented individuals, can do much to gain the mutual understanding and respect of many of our free world neighbors as they visit our country."

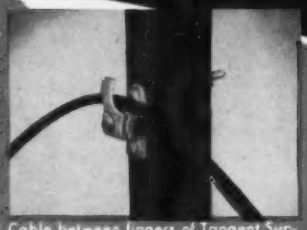
Threats to Prosperity

"I am seriously concerned about several vitally important threats to our future prosperity. They are: foreign competition; inflation, which is causing the American dollar and American products to lose their competitive standing in the world markets; federal and state governments becoming too large and too expensive—the government in business, and tax-free business.

"As a result of too much government, too many government employes, too much government in business and too many tax-free businesses, the taxes on the tax-paying people may become so large that they adversely affect our prosperity and our standard of living.

"Many people mistakenly believe that population and tax growth go hand in hand or increase proportionately. The fact is that in the last 20 years population has increased 33 per cent while the cost of federal, state and local government has increased 600 per cent, or 18 times as much."
—J. E. CORETTE, president of Montana Power Co.

NOW! Telephone cable that installs up to 4 TIMES FASTER!

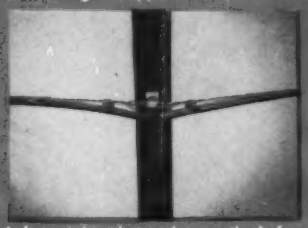


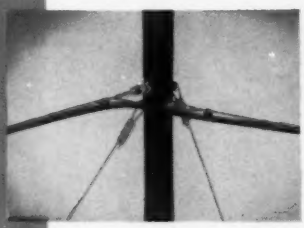
Cable between fingers of Tangent Support. (Malleable Iron Fittings Co. Cat. No. PA-290)

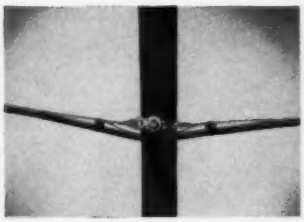
Final installation shows cable messenger firmly gripped between the jaws of the Tangent Support

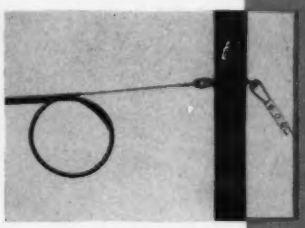
SUPERIOR I. M. CABLE

Supported Exchange Type

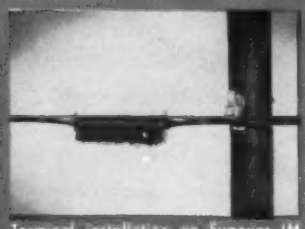








Left to right, photos show methods for corners to 90° and dead end installations. Standard pole line hardware is employed



Terminal installation on Superior IM Cable.

Eliminates spinning or supporting cable to a separate messenger...saves time and money!

- Messenger is an integral part of the cable jacket. Breaking strength 6300 pounds. Size 7/32", 19 strands galvanized steel. Can be gripped, pulled and tensioned using standard techniques.
- Variety of core constructions with plastic insulated conductors and longitudinally applied corrugated aluminum or copper shielding over the core tape.
- High molecular weight polyethylene jacket extruded overall.
- Sizes 6, 12, 18, 25, 50, 75, 100 pair; 24, 22 and 19 gauge.
- Cable exceeds current industry specifications.

4739

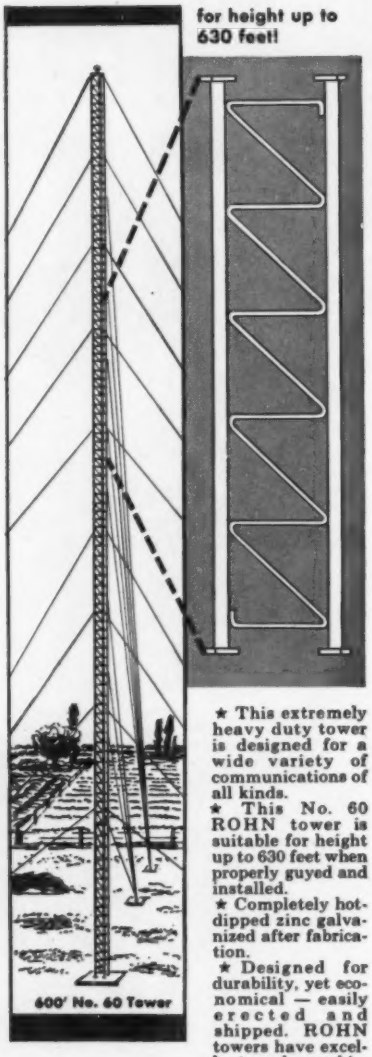
Write for complete information and prices to

SUPERIOR CABLE

SUPERIOR CABLE CORPORATION • HICKORY, N. C.

ROHN COMMUNICATION TOWER *No. 60*

for height up to 630 feet!



★ This extremely heavy duty tower is designed for a wide variety of communications of all kinds.
★ This No. 60 ROHN tower is suitable for height up to 630 feet when properly guyed and installed.
★ Completely hot-dipped zinc galvanized after fabrication.
★ Designed for durability, yet economical — easily erected and shipped. ROHN towers have excellent workmanship, construction and design. Each section is 10 feet in length.

FREE

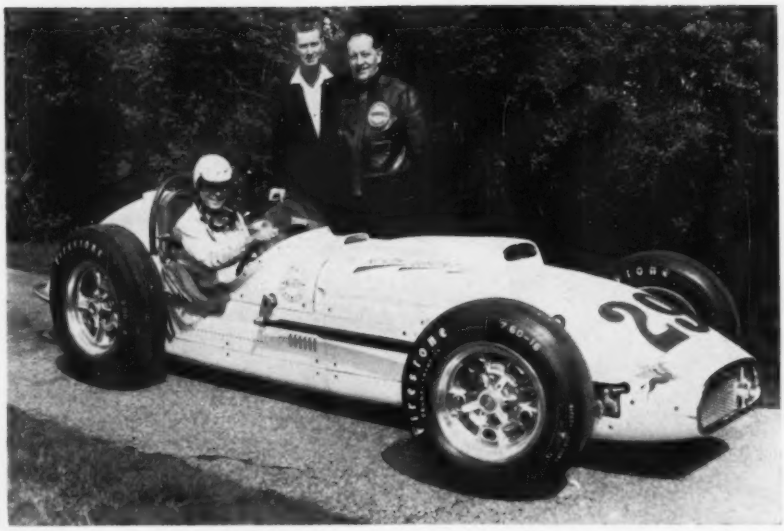
Details and complete engineering specifications gladly sent on request. Also ROHN representatives are coast-to-coast to assist you.

Write-Phone-Wire Today!

ROHN *Manufacturing Co.*

116 Limestone, Bellevue, Peoria, Illinois
Phone 7-8416

"Pioneer Manufacturers of Towers of All Kinds"



Posed with North Electric Co's racer is Driver Cliff Griffith (behind the wheel), Chief Mechanic Al Burch (center), and William Tucker, North's president, in a "Champion" jacket.

North Electric Has Car In Indianapolis Race

Members of the communications and electronics industries will be noting this year's 500 mile Memorial Day race at Indianapolis with greater interest than usual, since it has been announced that the North Electric Co. Special Racer No. 29 is an official entry.

Purchased by North President William Tucker in February, the championship class car will be driven by Cliff Griffith of Indianapolis, veteran of over 15 years' experience on major tracks. Mr. Griffith has finished in the top 10 at the Indianapolis classic on two occasions.

Built in 1958, the car has a Meyer-Drake engine and a chassis built by Kurtis-Craft. It was first entered in the 1958 Indianapolis race and was involved in a minor way in a 16-car crash on the first lap which resulted in the death of Pat O'Connor. Late in the same year, the car finished first among the American entries in a 250-mile race at Monza, Italy.

Qualifying speeds at Indianapolis for this car have been 143.6 and 143.7 and at Monza 176.5, the variation due to the high banks on the turns at Monza compared to the virtually flat curves at Indianapolis.

Mr. Tucker reveals that "We have made certain improvements that should advance our speed significantly. They include a radically new camshaft design to improve acceleration and suspension changes made to insure greater cornering stability." The racer was recently exhibited in Galion, Ohio, prior to the time trials. The car is expected to be entered in five other races this year, two in Milwaukee and in Detroit, Trenton, N. J. and Daytona Beach, Fla.

In last year's event, driver Don Freeland was forced to the sidelines after 390 miles of the race because of clogged fuel injection ports.

UNBREAKABLE HOT OR COLD CANTEEN

Superior to vacuum type bottles for use on line crew and one man trucks. Particularly good for cold liquids as mouth opening is large for inserting cubes or chunks of ice.

- One gallon capacity—light weight—non-conductor.
- Rugged plastic container will not corrode nor change taste or odor of contents.
- Clear fibre glass insulation.
- Built for rough use.
- Choice of light blue denim or bright red polished cotton covers.

Carton of six canteens, F.O.B.: San Gabriel.....$39.00

T. A. FORD CO., INC.
P.O. BOX 268
402 AGOSTINO RD. SAN GABRIEL, CALIF.

PLAN PBX VISITS

Continued from page 28

Creating Interest and Awareness

The PBX people must be approached with the specific intention of establishing or improving PBX relations.

Each PBX visit that we make should be of real value to the subscriber and to the telephone company. Otherwise, the whole fabric of any instructional plan we may have to improve service will fall apart.

Planned training, or instructional activities built on a strong foundation, cannot help but bring good results. They eliminate duplication and subsequent loss of time. They make the job of teaching easier because the training programs run smoothly and efficiently.

Activities must be kept balanced. When we vacillate, jump from one problem to another, we cannot expect the PBX people to keep pace.

Any educational program should be flexible. When an idea conflicts with the PBX management's conception of what this particular business might need in the way of service, we should be prepared to make such modifications as circumstances demand.

The Human Factor

The human factor is the most important guide to successful training. It is people alone that make any plan fail or succeed. But, if we plan carefully and properly, most troublesome conditions will be neutralized and the PBX subscriber's interest stimulated. Cooperation will result.

An instructor visiting a PBX should at all times keep mentally alert in order to perceive unfavorable reactions. If she is not sure a suggestion is appreciated, she should forget it, or she should wait until a later date when the attendant might be in a more receptive mood.

She must use extreme care, as a telephone company representative, to avoid involving herself, or her company, in a controversy that is definitely no concern of either.

The subscriber company management's active interest and support should be encouraged in developing the best use of their telephone equipment. They should be informed of services offered by the telephone company and how to obtain them.

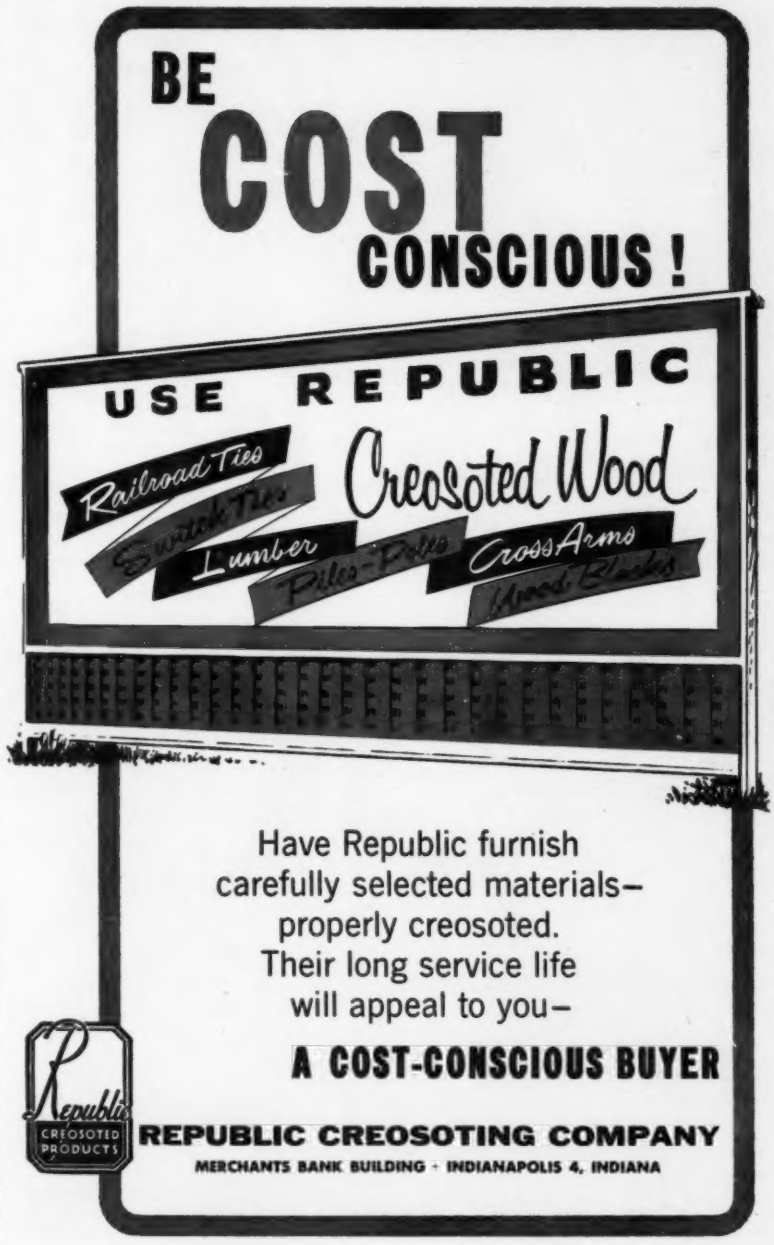
Users' Habits

The habits of extension users have a decided influence on the over-all performance of the PBX system. These habits not only have a far reaching effect on the quality of service given at the switchboard, but they control to a great extent, the cost of the service to the subscriber. Active support and supervision of PBX management in improving the habits of the extension user will work toward a success in any improvement program.

For the subscriber and the telephone company to receive equal value from instructional visits, both must be service-minded. Once the subscriber's personnel understands their management is in back of an attempt to improve service, immediate results will become apparent. Should the company management show apathy or indifference toward such a project, the whole organization will fall in line, and service will deteriorate instead of improving.

There are times when a telephone call will suffice instead of a visit, providing the subject discussed is not lengthy and is of minor importance. Telephone contacts can be a real aid in keeping the daily activities well balanced.

Whenever it is discovered that cer-



The High Tensile Wire with BUILT IN Safety Factor

Crapo HTL-135

COMPARE THE PHYSICAL VALUES!	
Diameter (inches)	.109
Breaking Strength (pounds) Rated (minimum)	1213
Breaking Strength (pounds) Average of actual tests	1350
Fatigue Endurance Strength In Pounds	466
Fatigue Endurance Strength In % of Ultimate Tensile Strength	35%
Elongation in 10 Inches	4 to 8%

By every rule of sound engineering practice, *Crapo* HTL-135 High Tensile Telephone Wire has proved to be the most dependable and economical conductor available for long-span rural lines.

Recommended sags and tensions for this rugged, high strength wire are based on accurately determined stress strain characteristics and on maintaining loads specified by the National Electric Safety Code. Initial unloaded tensions at the lowest temperature expected never exceed the fatigue endurance limit of the wire.

Crapo HTL-135 makes possible spans to 350 feet in Heavy Loading, 540 feet in Medium Loading and 650 feet and over in Light Loading Districts with a proven margin of safety.

Electrically, *Crapo* HTL-135 provides more than ample conductivity for typical subscriber lines in rural areas. Loops of 14 to 15 miles are practical with normal voltages and equipment. Longer loops are possible where higher voltages and more sensitive telephone sets are employed. This wire also is being used successfully with subscriber carrier current installations.

For low initial cost, low maintenance cost and all 'round reliability, insist upon the strength and high fatigue endurance characteristics provided by *Crapo* HTL-135! Write for Manual TM-59 containing complete engineering data!

tain ideas practiced by the subscriber are having a detrimental effect on the service, or are causing higher operating and equipment costs than are necessary, such facts should be brought to the attention of the firm's management. Efforts should then be made to substitute more desirable practices.

Subscriber chief operators or management people can be trained to recognize the correct operation of all segments of their PBX system and to quickly see inconsistencies and irregularities that are causing imperfections in the service.

Keep Attendants Alert

The purpose of PBX attendants is to recognize calls requiring treatment not covered by routine, and to handle them to the satisfaction of the caller. Every PBX system has different operating and extension user problems. No set pattern can be established for all situations. Therefore, the attendants and the extension users must be constantly alert for any emergency.

Attendants and extension users who are happy in their work and who are convinced of their employer's interest in them as individuals, will reflect a natural, sincere and friendly spirit.

Employes who are not encouraged by their supervisors to get rid of their job unhappiness by talking it over, often let their emotions affect their work. Difficulties and misunderstandings, when put into words, usually disappear.

Employes of firms which provide counselors report that interviews with them have been one of the most rewarding experiences of their business lives. It has been known for many years that good human relations is one of the most important factors in the success of any business.

Keep Pace With New Developments

A service adviser should keep pace with new developments and facilities so that she will be able to suggest their use when they will promote better service at less cost to the subscriber.

To do so, she must work closely with other departments in her company so that she may anticipate proposed equipment or practice changes and associate them with her PBX requirements.

A record of visits should be maintained by the service adviser, showing the service irregularities found at each PBX and what she has suggested to overcome them. As the record builds up through subsequent visits, a picture of the attendant's work, the extension user's errors and the management's cooperation will be plainly evident. It

will be a guide for future visits and will show the particular items that will need stressing next time.

We may define the service adviser's over-all job as the process of suggesting PBX operating, extension user and management practices, which, when used as dictated by accepted standards, will produce the desired balance between quality and the cost of service.

If the service adviser plans her visits carefully she will find her work interesting, pleasing and gratifying, and the PBX people she works with happy that she was chosen by her company to be their service guardian.

General of Pa. Appoints Snodgrass Controller

The appointment of Leonard W. Snodgrass, Lexington, Ky., as controller of the General Telephone Co. of Pennsylvania was recently announced by L. F. Shepherd, president. Mr. Snodgrass succeeded Robert D. Buzzard, who died suddenly on Apr. 16.

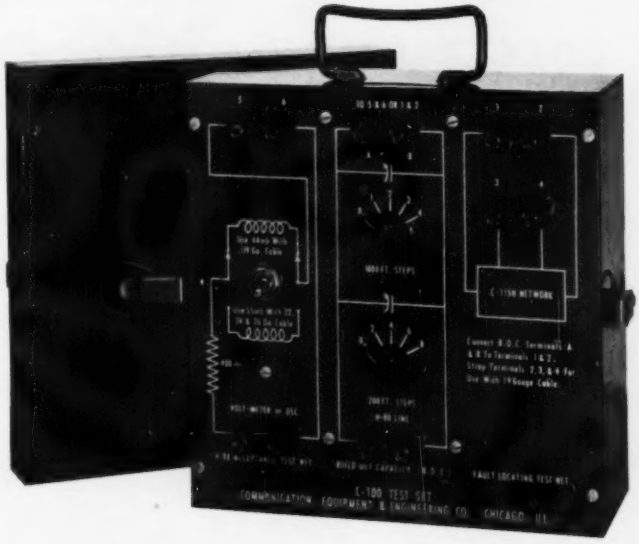
The new controller, whose appointment became effective May 1, had served as controller of General Telephone Co. of Kentucky since 1958.

L. W. SNODGRASS

He started his telephone career as an accounting clerk in Grinnell, Ia., in 1936, with the predecessor of the General Telephone Co. of the Midwest, and served in succession as general auditor, controller, assistant controller, assistant secretary, assistant treasurer, and as director of predecessor companies of the General Telephone Co. of Ohio from 1939 to 1958.

Mr. Snodgrass, a native of Newton, Ia., attended Antioch College at Yellow Springs, Ohio. He has been active in various telephone industry organizations.

Check your engineering and installation of telephone cable loading with a



CEECO C-100 TEST SET

The CEECO C-100 Test Set is designed for making acceptance tests and locating loading irregularities on H88 loaded facilities.

- Economical
- Easy to use
- Reliable
- Guaranteed Results

CEECO

Sold by your telephone equipment distributor, or write us for further information.

COMMUNICATION EQUIPMENT & ENGINEERING CO.
5646 West Race Avenue • Chicago 44, Illinois
Phone EStebrook 8-3109

BROWN WOOD PRESERVING CO.

HOME OFFICE

Commonwealth Building
Louisville, Kentucky

★

PLANTS

Louisville, Kentucky

Brownville, Alabama

Live Oak, Florida

★

Large stocks of power, telephone and barn poles, timber and crossarms.

★

SERVING THE TELEPHONE INDUSTRY FOR 35 YEARS

News on New Products

COMPACT BOOTH—A compact aluminum telephone booth "tailored" for locations where floor space is at a premium has been announced by the Aluminum Co. of America (Alcoa).

The new compact booth is designed for multiple installations in high traffic areas and should enable telephone companies to significantly increase their service locations, Alcoa states. Both the new and Alcoa's aluminum outdoor booth utilize interchangeable replacement parts.

The compact booth is 28¾ inches square, and takes 26 per cent less area than its big brother, said Charles Braglio, sales manager for Alcoa telephone booths. He pointed out that the compact booth saves valuable floor space in super markets, drug stores, department stores and other busy locations.

The booth's compact construction, high strength, and trim appearance, make it ideal for indoor service, yet it is rugged enough for many outdoor installations, Mr. Braglio added.

The compact booth is fabricated of high-strength, corrosion-resistant Alcoa aluminum. The durable, abrasion-resistant Alumilite finish never needs painting, Alcoa states. Pencil marks or smudges wash off easily with soap and water. Request NP1331.

•

MICROFILMER—Recordak Corp. recently announced its new Reliant 500 microfilmer for use in microfilming toll tickets or in records management pro-

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1331_____; NP1332_____; NP1333_____; NP1334_____;

NP1335_____; NP1336.

Name.....

Company.....

Street.....

Town and State.....

5/21/60

WILL YOUR "GROUNDS" CARRY IT?

Records show that ground resistance does not remain constant. Tests should be made at least once a year, and high ground resistance corrected.

USE THE MEGGER® GROUND TESTER—To test ground connections, the easiest, quickest, and most dependable method is the use of the Megger Ground Tester with its own hand generator for current supply. Reading the resistance value is as easy as reading a voltmeter—directly in ohms. Only *one set of connections, one operation, without any calculations.* Each instrument is self-contained, rugged, and portable. Its cost is a small fraction of the savings resulting from adequate grounding protection.

■1011

Write for Ground Testing File 25-T

JAMES G. BIDDLE CO.

Electrical & Speed Measuring Instruments

1316 ARCH STREET • PHILADELPHIA 7, PA.

WHAT COMMUNICATION WORKERS NEED TO KNOW ABOUT Electricity . . .

Second Edition Just Published

The communications worker who needs reliable, quick knowledge of fundamentals of electrical engineering has in this book all the explanations, illustrations, and applications of electricity he needs in his job. *The explanations and illustrations are taken from the communication field itself*—from telegraphy, telephony, radio and television.

THE ELECTRICAL FUNDAMENTALS of COMMUNICATION

• by Arthur Lemuel Albert Professor of Communication Engineering, Oregon State College

Second Edition, 331 pages, 6x9 383 illustrations $7.00

WRITTEN expressly for radio men, telegraphers, telephony engineers, this book gives fundamentals of electrical engineering accurately, simply, from the point of view of the communication industry. It gives you fundamentals of electronics . . . explains what you need to know about direct current, conductors, resistors, and insulators; discusses such topics as the magnetic field, sources of electric energy, induction, motor and generator action, magnetic hysteresis, eddy currents, and many others. You will find sound, basic information that will help you know and understand electricity.

The Second Edition includes new AIEE and IRE standards and current usage . . . gives additional emphasis to radio fundamentals, making it more useful to those interested in electronic, radio, and television fields.

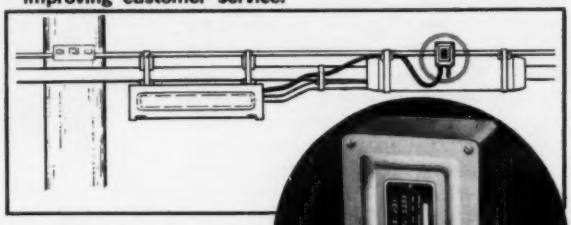
Order From

TELEPHONY PUBLISHING CORP.

608 S. Dearborn St. Chicago 5, Ill.

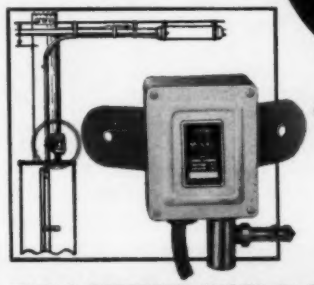
U.E. Protection for PRESSURIZED CABLE SYSTEMS

with U.E.'s improved, compact Pressure Guard as the proven aid for reducing cable maintenance costs and improving customer service.



Cable Mounted

TYPE J31-5333



Pole Mounted

TYPE J31-5338

WHY A PRESSURE GUARD IS ESSENTIAL FOR MAXIMUM EFFICIENCY IN PRESSURIZED CABLE SYSTEMS

- The Pressure Guard monitors and protects cable at all times, not just periodically.
- The Pressure Guard ensures routine sheath breaks are detected and localized prior to service disruption.
- The Pressure Guard provides one more value that may be detected at the test desk.
- The Pressure Guard transmits its signals via working subscriber lines rather than requiring special circuits.
- The Pressure Guard reduces cable maintenance costs and improves customer service at very low cost.
- The Pressure Guard's low cost permits liberal usage for maximum protection.

SPECIFICATIONS

TYPE J31-5333

Field Adjustment Range	0 to 10 PSI
Factory Setting	2 ±¼ PSI on falling pressure
Pressure Response	4 ±½ oz.
Proof Pressure	30 PSI
Electric Rating	0.01 amp 100 V DC
Load Resistor	Carbon composition 270,000 OHM 1 watt

Drop Wire .....6' Type SJO#18 stranded 2.0 conductor
Pressure connection: ⅛ NPT (⅛ x ⅛ elbow provided separately; usually not required with direct sleeve mounting).

TYPE J31-5338

Same as above with the addition of pole mounting provisions and 6' of copper tubing.

Available through regular suppliers of telephone equipment. Contact them for new Type J31 Pressure Guard brochure. Catalogs covering other UE pressure, vacuum and temperature controls also available.

UNITED ELECTRIC

CONTROLS COMPANY

85 School St., Watertown, Mass.

SUBSIDIARIES

United Electrical Controls (Canada) Ltd. O'Connell Avenue Dorval, Quebec, Canada

United Sensor & Control Corp. Box 127 Glastonbury, Conn.

grams calling for microfilming of documents and correspondence.

The Reliant 500 will record on microfilm up to 500 checks or 185 letters in a single minute, according to the company. It retains many of the features of previous Recordak models, including Kodamatic Indexing to facilitate rapid retrieval of data, high speed feeder, and document counter.

One of the several new features of the Reliant 500 is the removable and interchangeable film unit. By changing film units, reduction ratios can be varied in seconds. In addition, this feature allows different departments within an organization to use a single microfilmer, yet retain their record continuity. Additional film units will be sold as accessories. Three reduction ratios will be available: 40:1, 32:1 and 24:1. Request NP1332.

•

POLE INSPECTION KIT — A Pole Inspection Kit containing all accessory equipment for ground-line inspection of utility poles is now available from the Chapman Chemical Co., makers of Pol-Nu preservative for ground-line pole treatment.

The kit provides a compact, portable system for keeping required tools at hand.

Included in the metal tote-box are the following items:

200 treated wood plugs.
Hammer head hatchet.
Stapling gun and staples.
Eight-in. increment borer.
Eight-ft. steel tape.
Wire brushes.
Ten-in. mortar trowel.
Waterless hand-cleaner.
Wiping cloth.
200 Pol-Nu aluminum dating tags with aluminum nails.

All items in the kit are available on individual re-order for replacement, the company states. Request NP1333.

•

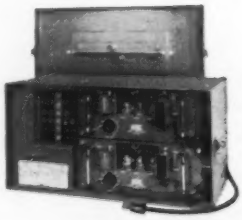
VACUUM TUBE VOLTMETER — A new vacuum tube voltmeter covering the frequency range of 3 to 600 kc is now available from Sierra Electronic Corp.

The new voltmeter, Model 125A, is a compact instrument having both narrow and wide selectivity settings plus a flat

GET ON THE ALTEC LINE—for improved telephone equipment

The best number in your book—the one that connects you with the Altec line. For performance, reliability, and servicing ease, the Altec line of amplifiers and equipment have won a resounding vote of confidence from the industry. Precision-engineered to meet your most exacting specifications, Altec products offer the improved design that makes maximum use of minimum space—and the "plus" that makes the difference—Altec quality.

The 455A Amplifier is a transistorized repeater type amplifier wrapping up a compact package of gain for telephone circuit use. Incorporates the gain, power handling capacity, frequency response, plug-in features in the physical size of vacuum tube type repeater. Ten repeaters go in the same standard rack mount used for vacuum tube types. Operates on 48 volt DC @ 22 ma. Since it is transistorized no 130 volt supply is needed. For details, write for Altec Lansing Bulletin #13385.



The S-17 Amplifier System is designed for the highest quality program transmission over telephone circuits. A single portable and rack-mountable housing contains two (2) amplifiers and accessory jacks and equalizers so that two (2) complete circuits can be maintained without cross talk. Write for Bulletin #12835.

For complete information about Altec telephone and paging equipment write to the address below or call PRospect 4-2900 in Anaheim or ALgonquin 5-3636 in New York.

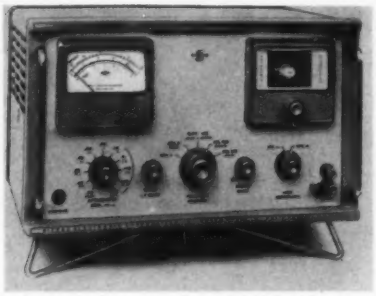
ALTEC LANSING CORPORATION

ALTEC LANSING CORPORATION, DEPT. T-52D
1515 S. Manchester Ave., Anaheim, Calif.
161 6th Ave., New York 13, N. Y.
A subsidiary of Ling-Altec Electronics, Inc.

voltmeter position. This triple mode measurement capability makes the 125A a versatile instrument for carrier measurements, for wave analysis and for general laboratory use, Sierra states.

The voltmeter's measurement range is –90 dbm to +32 dbm (tunable mode) and –30 dbm to +32 dbm (flat mode).

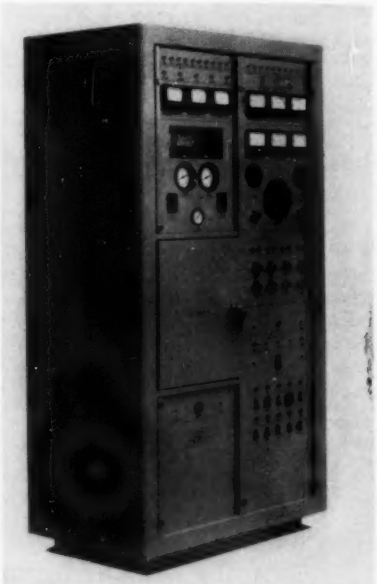
The narrow selectivity bandwidth is 250 cps wide at the 3 db points, and 600 cps wide at the 30 db points. The



broad selectivity bandwidth is 2.5 kc wide at the 3 db points and 6 kc at the 30 db points. Accuracy on both bands, according to the company, is ±1 db in level measurement. The accuracy of frequency measurement is ±1 kc from 3 kc to 100 kc, and ±2 kc from 100 kc to 600 kc. Request NP1334.

KLYSTRON POWER AMPLIFIER—A new 2 kilowatt RF klystron power amplifier, designed for both military and industrial applications, also has been developed by Sierra Electronic Corp.

The company states that four VA-856



klystron tubes are used to give Model 210A, the new amplifier, a range of 7.125 kmc to 8.5 kmc. It has a gain in excess of 40 db when operated as a broadband amplifier. Other versions of the Model 210A can be provided to cover the frequency ranges of 5.875 to 6.425 kmc or from 8.0 to 10.8 kmc.

Typical applications of the amplifier include high power point-to-point communications, tropospheric scatter, and other microwave communications systems.

With the exception of the separate heat exchanger, all circuitry in the Model 210A is centralized in one cabinet.

Maximum bandwidths at the ½ power points are 15 mc, staggered tuned, and 10 mc synchronously tuned. Request NP 1335.

•

SMALL TRENCHER—"You can set the new Davis Pup Utility Trencher for digging its trench—and go do something else," Davis Mfg., Inc. stated in announcing its latest trenching equipment.

Along with the new "dig-by-itself" feature of the 1960 Davis Pup, the trencher has been built to high-quality standards for jobs that are uneconomical for more expensive equipment, the

LOOK TO THE LEADER...
LOOK TO LINDSAY

FOR RELIABILITY • SERVICE
• NATIONALLY KNOWN TELEPHONE SUPPLIES

Lindsay knows from years of experience that telephone companies cannot compromise on supplier's quality. Reliability, service, and lines—all must be outstanding. This knowledge has played an important part in the Lindsay tradition of leadership.

THE LINDSAY TELEPHONE SUPPLY CO.
360 East Highland Road, Northfield, Ohio • Tel. IMperial 7-7181

company states. The Davis Pup—self-powered, self-propelled and portable—digs 2 to 3 inches wide a yard deep or 4 inches wide to a half-yard in depth.

Positively driven by a simple six-speed winch mechanism, the Pup draws itself straight down the line the user wants dug, Davis states. The user drives a stake at the point to which the Pup is to dig, hooks on the winch line and starts the rig working.

Furnishing its own power and requiring no skilled operator, the Pup works effectively in hard ground, heavy soil —wet or dry, gumbo and sand, the company reports. Request NP1336.

Rabourn Named Personnel Director For CW&T

Owen Rabourn has been named director of personnel for California Water & Telephone Co., filling the vacancy caused by the untimely death of Ernest Aldrich, it was announced recently by vice president and general manager, Peter A. Nenzel.

Mr. Aldrich, who suffered a fatal heart attack on Mar. 29, had been with CW&T since 1957. Mr. Rabourn has been with the company for seven years and has served in a variety of positions. Following graduation from high school, the new director of personnel joined West Coast Telephone Co. in Everett, Wash. and remained there until he joined the Coast Guard.

OWEN RABOURN

Following his discharge, he enrolled at Arizona State College and, in 1953, received his bachelor of science degree in personnel administration. Immediately afterward, he went to work for CW&T in the accounting department.

In 1955, Mr. Rabourn was transferred to the personnel department to set up a testing program for new job applicants. Later, he was promoted to employment supervisor, then to the position of assistant to the director of industrial relations.

He is a member of the Personnel and Industrial Relations Association.

Caution, the Watchword

"The best tip I can give anyone is: Watch it. It is utterly incomprehensible why people will buy some of the things that come across my desk. All we can do is educate people to use the same care in buying securities as they do in buying automobiles. . . . I cannot visualize any legislation which would protect the American investor against a falling market, nor can I conjure up any reason why, or any mechanism by means of which, Congress should try to build a ratchet into stock market prices which will prevent their decline."—EDWARD N. GADSBY, *Chairman, Securities & Exchange Commission.*

INSPECTION SERVICE
"AT TIMBER TREATING PLANTS"
Of poles, crossarms, and preservative treatments. Analysis of wood preservatives. Consultation and specification writing.
A. W. WILLIAMS INSPECTION CO., INC.
MOBILE, ALABAMA
New York • St. Louis • Portland
Inspectors stationed throughout the U.S.A.

Electric Power and Communications Construction
E. & C. CONTRACTING CO.
Box 191
Paoli, Indiana
Phone 7821

MURPHY ENGINEERING LABORATORIES, Inc.
ELECTRONIC RESEARCH DEVELOPMENT MANUFACTURE
4419 TULSA
HOUSTON 24, TEXAS
Write For FREE Literature

TUDOR AND YAGER, INC.
Telephone Construction
TIPTON, INDIANA
Phone OSborne 5-2267

CABANISS-POGUE COMPANY
Consulting Engineers
Appraisals—Cost and Rate Studies
Financial Assistance
GRANT BLDG., ATLANTA, GEORGIA

CARL C. CRANE, INC.
Consulting Engineers
121 S. Pinckney St. Madison 1, Wis.
Telephone ALpine 6-0247

CLIFTON APPRAISAL COMPANY
CONSULTING ENGINEERS
EXTENSIVE EXPERIENCE IN DESIGN CONSTRUCTION AND APPRAISAL OF TELEPHONE PROPERTY
P.O. BOX 5012 — COLUMBUS 12, OHIO
TELEPHONE: HUdson 8-6713

FODNESS AND ASSOCIATES
Consulting Engineers
Power Communications
Surveys - Estimates - Appraisals - Designs
Post Office Box 112 - Room 306
First Citizens Bank Building
Watertown, South Dakota
Telephone TUrner 6-4222

McGRATH ENGINEERING, INC.
Consulting Engineers
209 West 6th Street
TOPEKA, KANSAS
Telephone CE 2-2358

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Appraisals—Original Cost Studies
Plant, Traffic and Commercial Engineering
120 S. La Salle St.
Chicago 3, Ill. Tel.: FRanklin 2-5924

SUBMARINE CABLE Lead (All New) Priced For Quick Sale

6 Pair #19 Ga. Paper Ins. Lead Covered, Double Steel Wire Armor, two Layers Jute	4 M Ft.
21 Pair, #19 Ga., As Above	2,100 Ft.
26 Pair, #19 Ga., As Above (800 & 500 Ft. Lengths)	14,000 Ft.
51 Pair, #19 Ga., As Above	2,000 Ft.

OTHER CABLE

11 Pair, #19 Ga. Paper, Lead (4,500 Ft. Reels)	22,000 Ft.
7 Quad. #19 Ga., Paper Lead	100 M Ft.
7 Quad. #19 Ga., Plastic, PVC	5,300 Ft.
37 Quad. #19 Ga., Paper Lead	1,050 Ft.
51 Pair #19 Ga., Paper Lead (plus 4 #16 Shielded Pair with polyeth, insulation) video.	1,200 Ft.
303 Pair, #22 Ga. Ankoseal 775P	2,300 Ft.
5 Pair, #19 Neoprene (Latex Ins.)	50 M Ft.

Spiral 4, 1 Star Quad, #18 Stranded, Neoprene Jacket 3/8" OD. Self-Supporting (also suitable for direct burial). 1,320 Ft. Reels with Quick Connector ..... $50 Reel
(6.MH Loading Coils Built Into Connector)

TERMINALS Lead Stub and no Stub Types
Exterior & Interior—LOADING COILS

DROP WIRE, New #.104 Copperweld 40%, twisted Pair, Heavy Neoprene Jacket ..... $50 M

#18 Ga., Copperweld, Neoprene, Reinforced Parallel, Lengths Average 500 Ft. (Used) ..... $10 M

FILTERS, Carrier H, C, O Type.
538D O Carrier (2198) New, Pole Mtg. ..... $ 50.00

DRAINAGE COILS, #257A Retard, W.E.	5.00
2 Coils on 19" Mtg. with Protectors	10.00
As Above With Galv. Pole Mtg. Can	12.50

PHANTOM COILS, W.E. For Inside or Pole.

COMPOSITE SETS—REPEATERS

POLAR RELAYS, W.E. #255A, Slightly Used	5.00
(Also 209, 239 and 280 Types) New	10.00
Western Union #202A (A.E.) New	15.00
Western Union 2A Spark Killer, 11/44 MF. 1	1.00
Western Union 255A Relay Test Sets	25.00
Western Electric (Signal Corps) 1-193 Relay Test Sets	100.00
Current Flow Test Set 1-181, Per W. E. D-162269, Brand New	100.00

POLE LINE SPECIALS

Cross Arm Braces, 20"-22"	$ .20
Angle Thimbleye Bolts, 5/8"x14"	.50
3/4"x12"	.50
Lift Plates, 3 Hole, 5/8"	.15
Guy Attachments, Chance 158, 5/8" (Similar to Jos. 6500, Hubb. 1100)	.35
Guy Attachments, Strap Type 1 Hole	.15
2 Hole	.20
Clamps, Ground Rod, Cast Bronze 1/2" (Sq. Head Set Screw) 200 for	25.00
Machine Bolts, 5/8"x12"	.20
Double Arming Bolt, 5/8"x12"	.25
1/2"x22"	.25
Lay-Cit Grips (for Self-Supp. Cable)	.15
Bridging Connectors, W.E. #2A	.05
Lag Wrench, 4 Way to 3/4" Nuts	1.00
Sleeves, Nicopress 1-102-C, per C	3.00
Deadend, 91-102-C, per C	3.50
3-045, per C	2.00
Nicopress Tools, #31-C or CQ	2.50
#17-2	2.00
Grips, Wire, Klein 1613-20	2.00
Buffalo, with Double Block	3.00
Transposition Tool (Running Bd.)	7.50
Cable Car, with Chain & Brake	17.50
Good-Used	10.00
Handline, with Bronze Pulley	7.50

Rings, Cable Hangar, asst. size
(Many Other Hardware Items)

CABLE TEST SETS, Tone, W.E. 1020C (with 716 Receiver & Exploring) $49.50
Less Exploring Coil 39.50

TRANSMISSION MEASURING SETS

W. E. 13A, Reconditioned	$100.00
32A, (Carrier)	100.00
19C, Oscillator	150.00
51A, Oscillator	100.00
Signals Corps 1-61 Combined Oscillator & Trans. Meas.	100.00

TEST BOARDS: Wire Chief's, with L&N Type U Bridge & Galv. for CB-LB Lines & Trunks with 180 Line Jack Field.

Jacks, Plugs, Test & Patch Cords, Relay Racks, Open & Enclosed.

— SATISFACTION GUARANTEED —

The Telectric Co.

1218 VENICE BLVD. (DDD)—213 RI 8-2249 LOS ANGELES 6, CAL.

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less. Classified advertisements must reach us 8 days before publication date.

POSITION WANTED

14 YEARS EXPERIENCE—telephone company and private system. Line construction, installation and maintenance of dial, carrier, teletype, mobile radio, telemeter, PBX. Reply Box 463, Concord, Calif.

SPLICER'S HELPER—2½ years experience. Family man, age 28, desires permanent position with progressive minded company in State of California. Complete qualifications upon request. Salary no object. Write Box No. 4403, c/o TELEPHONY.

HELP WANTED

AMBITIOUS MEN qualified as Station Installers, Equipment Installers, Cable Splicers, Linemen. Work in Midwest. Harris-McBurney Company, Inc., P.O. Box 267, Jackson, Mich.

LINEMAN, GENERAL MAINTENANCE MAN for expanding Independent company. Waunakee Telephone Co., Waunakee, Wis.

GENERAL MANAGER: Because of a retirement, city of Anchorage, Alaska, has opening for administrative executive for its fast-growing all dial, 2-5 number telephone system. In last 5 years system has grown from 8,500 to 19,000 stations; with great future growth potential. Managerial experience necessary; minimum age 35 years; salary $14,000, with 6-week annual leave. Write G. C. Shannon, City Manager, Anchorage, Alaska.

HELP WANTED

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1800 Johnson St., Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

WANTED MAINTENANCE MAN—opportunity for an experienced maintenance man on Stromberg-Carlson type 40, toll ticketing system. Graduate of Stromberg-Carlson toll ticketing school preferred. Address—The Western Reserve Telephone Co., 245 N. Main St., Hudson, Ohio. Telephone OLympic 3-5151.

COMMUNICATIONS ENGINEER

Large merchandising chain with national branches is seeking for its corporate staff in Chicago a man with the following qualifications:

Age 28 to 40. Technical college education or equivalent in experience. Minimum of three years experience in communication utilities as outside plant supervisor or communication engineer. Must have a thorough knowledge of telephone, telegraph and communications engineering techniques and principles and a working knowledge of utility problems and service requirements.

Excellent starting salary based on background and accomplishments. Liberal fringe benefits and unusual opportunity for further personal growth with an expanding company.

Please submit résumé of education, experience, and earnings requirements. All replies in strictest confidence. Write Box No. 4404, c/o TELEPHONY.

FOR SALE

LEICH 901-wall or desk magneto telephones. Cleaned, tested and guaranteed, $16.50 each. As removed from service, no broken or missing parts, $15.00 each. Turtle Lake Tel. Co., Turtle Lake, Wis.

NEW—COOK XB—POLE TERMINALS, 16 pair, unprotected, w/stubs—$5.00 each. Rebuilt like new, desk sets, Stromberg #1543—St. line, coiled cords, manual—$12.00 each. Independent Telephone Repair Co., 2137 West 21st St., Chicago, Ill.

SEVERAL HUNDRED POINT TRAMP BRACKETS, used, L/R, light duty, 9" mounting, galvanized, steel pins and cobs included. Best price—you pick up. Eastern Slope Rural Telephone Ass'n., Inc., Limon, Colo.

TELEPHONES WESTERN ELECTRIC 302 (251) with 5H Dials, completely reconditioned, neoprene cords, metropolitan plates, new finger wheels and other necessary parts. Ringer frequency S.L. 30, 42, 54 and 66. Satisfaction guaranteed—$7.00 each. Quattlebaum Telephone Supply Co., Bonifay, Fla.

Parts for Kellogg #1000. Cleaned and tested

Sub bases with chrome plungers	1.50 ea.
Handset handles	1.00 "
Induction Coils	1.00 "
Condensers	1.00 "
Ringers (Most frequencies)	1.50 "
Transmitters	.50 "
Handset rings	.15 "
Handset transmitter cups	.25 "
Handset receiver caps	.25 "
Receivers	.50 "
Kellogg dial as removed.	
Numbers only	1.00 ea.
Numbers and letters	1.25 "
Kellogg 1100 wall and 1000 desk As removed from service. No Broken	7.00 "

Parts for A.E. 40. Cleaned and tested

Cases	2.50 ea.
Handles only	1.00 "
Transmitter and receiver units	.50 "
Caps	.25 "
Complete Handles	2.00 "
S. L. Ringers	.50 "
Condensers Large	.35 "
Condensers Small	.25 "
Rubber Base rings (New)	.20 "
A. E. Dials. As removed	
Numbers only	1.00 "
Numbers and letters	1.25 "

FREE

Instructions on changing cases in 5 minutes; no soldering.

Telephone Equipment, Inc.
Montrose, Michigan

SAVE WITH SAFETY
RECONDITIONED BY "BUCKEYE"

REPEATING COILS

50 A.E. #D-283154-A
350 Kell. #20-A
90 Kell. #21-A
100 S.C. #11-A
30 W.E. #62-C
44 W.E. #93-A
6 W.E. #93-B
10 W.E. #93-F
33 W.E. #120-E
75 W.E. #120-G

CALCULAGRAPH

(4) Model 33 Electric type 20 Volt 60 Cycle. Reconditioned-Excellent.

BATTERY ELIMINATORS

11 Raytheon #1044, 24 Volt, 1 Amp.

2 Raytheon #1040-AR, 24 Volt, 3 Amp.

BUCKEYE TELEPHONE & SUPPLY CO.

1250 KINNEAR RD. HUDSON 8-0655 COLUMBUS 21, OHIO

EXPANDET
SCREW ANCHORS
Vinyl Plastic • Best Device of Its Kind Available • Use with All Materials.
DANISH IMPORT
21566 Donaldson-Dearborn, Mich.

VEST POCKET NON-RESIDUAL
CONTACT BURNISHER

WITH 6 REPLACEABLE BLADES

Handy, practical. Dielectric black plastic barrel and cap permits working safely on "live" contacts. 4¼" long x ⅜" diameter.

No. CB-5—with 6—.007" thick blades $3.80
No. CB-54—with 6—.004" thick blades $3.95

Reservoir for extra blades.

Prompt Shipment

P. K. NEUSES, INC.
1205 W. Euclid Ave., Arlington Heights, Ill.

YOUR DIALS
Reconditioned by Specialists
Exclusive Materials and Techniques Applied to All Makes and Types
DIAL HAVEN INC.
P. O. BOX 655, MONROE, N. Y.
Code 914 STory 3-2221

ORDER FROM L. E. S. AND PAY LESS
LINEMEN'S CONSTRUCTION TOOLS
PROMPT DELIVERY FROM STOCK
Send for Bargain Stock List No. LT.
LINE EQUIPMENT SALES
46 W. Harrison St. Chicago 5, Ill.

REPAIR SERVICE
Of Telephones, Dials, Operators' Head Sets
A.E. L965 Hand Test Tel.
W.E. 1011 Test Tel.
B. Y. DIAL SERVICE
411 WEST 22ND — HIGGINSVILLE, MO.
Workmanship Guaranteed • Speedy Service

GET RESULTS
SALES — ATTENDANCE — RECOGNITION
Use Quality Telephone Incentive Jewelry
WRITE
O. C. TANNER CO.
1930 So. State St. • Salt Lake City 15, Utah

CABLE SPLICERS • LINEMEN
STATION INSTALLERS
STEADY WORK, GOOD PAY
MIDWEST LOCATION
The Weikel Line Company, Inc.
FORT WAYNE, IND.

WANTED TO BUY

WANTED ALL MAKES OLD TELEPHONES—our truck will pick up and pay you Cash on the spot. Telephone Co., Turtle Lake, Wis.

TELEPHONES—all types—any condition, candlesticks, wall sets, etc. Write advising quantities available. Our trucks will pick up. Reply to Box No. 3952, c/o TELEPHONY.

ATLANTIC
Creosoting Co., Inc., 17 Battery Pl., N. Y. C.
PINE POLES
Creosote Oil or Pentachlorophenol
Boston, Mass. Portsmouth, Va.
New York, N. Y. Philadelphia, Pa.
Savannah, Ga.

POLES • CROSSARMS
RAIL or TRUCK DELIVERY
Pressure-treated to your specifications. 16 sales offices, 34 plants serving you. See Yellow Pages, write or call Pittsburgh EXpress 1-3300.
C-10

KOPPERS COMPANY, INC.
Wood Preserving Division
757 Koppers Bldg., Pittsburgh 19, Pa.

PENTA WOOD PRODUCTS, INC.
Northern Pine poles. Pressure treated with penta. PROMPT TRUCK DELIVERY.
SIREN, WISCONSIN Tel. 34

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co. — Northern White Cedar Poles, Pentachlorophenol treated. Plant and Yards, Phelps, Wis.

Dierks Forests, Inc., Wood Preserving Division, 810 Whittington Ave., Hot Springs, Arkansas. Southern Pine select poles all sizes and lengths, pressure-treated, creosote or penta. Also creosote-2% penta mixture. Prompt shipment.

Eppinger & Russell Co., 80—6th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

International Paper Co., Wood Preserving Division — 926 Grand Avenue, Kansas City, Missouri—"LONG-BELL" pressure-treated Southern Pine and Douglas Fir Poles—Creosote or Penta.

Piedmont Wood Preserving Company —Creosoted and Creosote-Penta Treated Pine Poles. Plant, Augusta, Georgia. Yards, Virginia, West Virginia and Connecticut. Address inquiries to Box 1662, Spartanburg, S. C.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

Limited Quantities of Reconditioned W.E. 354 Wall Telephones, F-1 Handset, with New Coiled Cords, Metropolitan Dial, Straight Line Ringer, 3600 ohm. We can supply in some cycles, if desired. Color Black only. Price with Dial—$12.50. Price, Dial Blank—$10.50.

Request Catalog—Telephones, Switchboards, Parts, Trucks, Wire and Cable.

BOHNSACK EQUIPMENT COMPANY
GERMANTOWN, N. Y.

PROFESSIONAL ENGINEERING AND CONSTRUCTION SERVICES
Plant Construction Crews • Installer Repairmen
Cable Splicers
CENTRAL OFFICE INSTALLATION
HENKELS & McCOY
PHILADELPHIA
1800 Johnson St. Elkhart, Ind. Tel. Congress 4-1121

Atlanta, Ga.	TR 5-2769	St. Johns, Mich.	966
Ashland, Ohio	3-7543	St. James, Minn.	492
Bloomington, Ill.	5-7717	Durham, N.C.	7-1316
Lebanon, Ky.	660	Wausau, Wis.	2-2356

Victorville, Calif. 5-9012
PERFORMANCE Has Built Our Business

C.O. & P.A.B.X.
ENG.—INST.—MODIF.—ROUTINE
NEW OFFICE OR ADDITION
HAVE — **T.E.I.** — DO IT
COMPLETE — GUARANTEED
New and Used C.O. Equip. Furnished on Request
TELEPHONE ELECTRONICS INSTALLATION CORP.
2118 E. 30th St. Erie, Pa. Phone TW 9-5895

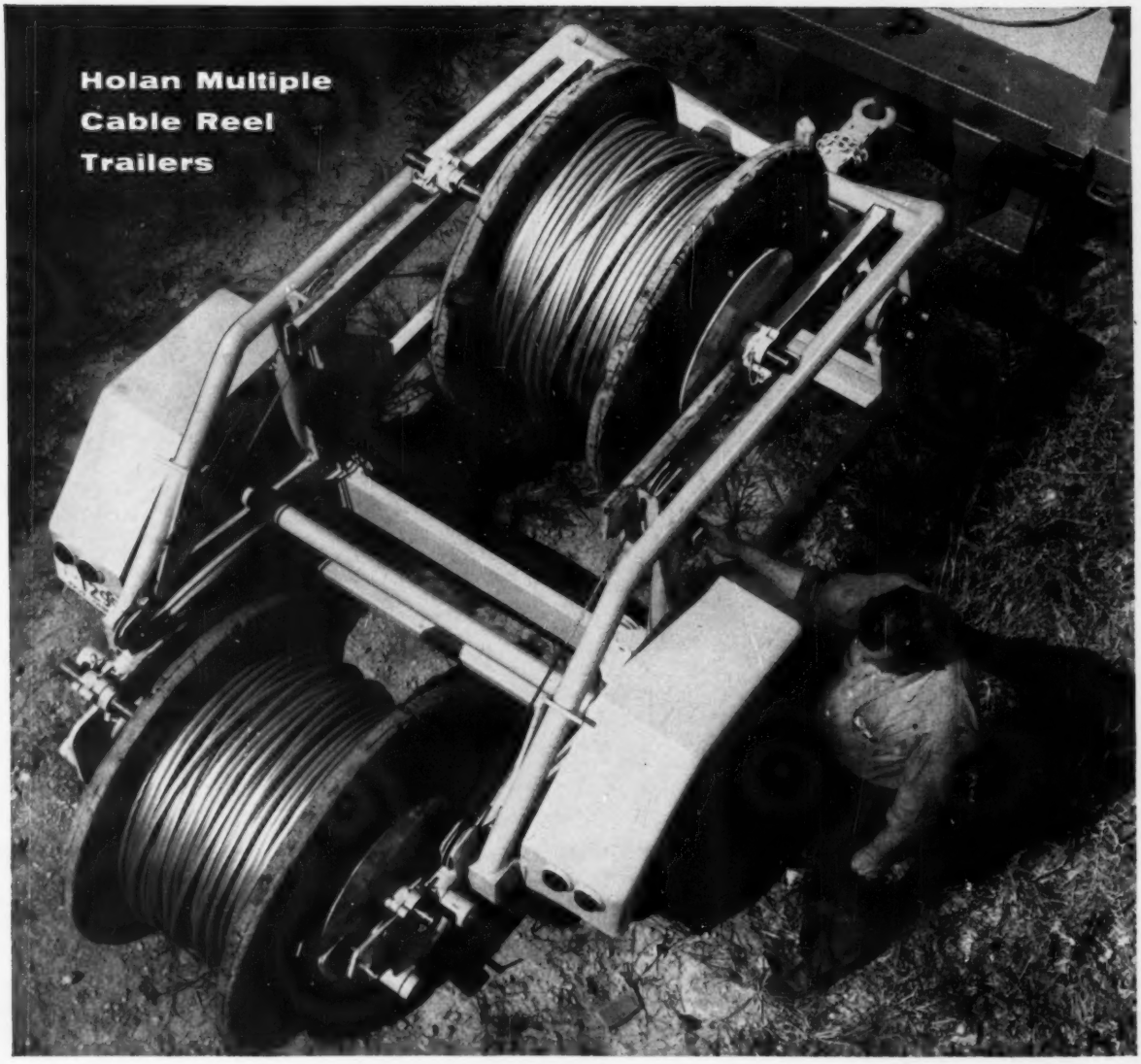
CABLE CONSTRUCTION CO.
1512 Center St. Tacoma, Washington
ENGINEERING - CONSTRUCTION
SPLICING - CABLE PLOWING
CENTRAL OFFICE INSTALLATION
World-Wide

ROBERT E. FOLEY CONSTRUCTION CORP.
DESIGN—SURVEYS—APPRAISALS—Construction and Maintenance of Overhead and Underground Telephone Plant. Complete supply of poles available for emergency requirements.
48 GRISWOLD STREET
BINGHAMTON, N. Y. TEL. 2-7215

Index to ADVERTISERS

	Page
Acker Company, Geo. M.	—
Acme Electric Corporation	—
Acme Visible Records, Inc.	—
Airtronics International Corp.	—
Alphaduct Wire & Cable Co., The	—
Altec Lansing Corp.	72
Aluminum Company of America	—
Amchem Products, Inc.	55
American Electrical Heater Co.	—
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	—
Anaconda Wire & Cable Co.	—
Ansonia Wire & Cable Co., The	—
Arps Corporation	—
Atlantic Creosoting Co., The	77
Automatic Electric Sales Corp.	14-15, 40-41, 46-47
Avnet Electronics Corp.	—
Baker Wood Division	—
Barber Advertising Specialties, Walt	—
Bell Telephone Laboratories, Inc.	43
Benner-Nawman, Inc.	—
Berry & Co., L. M.	—
Bethlehem Steel Co.	—
Biddle Co., James G.	71
Bishop Manufacturing Corp.	—
Bohnsack Equipment Co.	77
Brand, Wm.—Rex Div.	—
Brown Mfg. Co.	63
Brown Wood Preserving Co.	70
Buckeye Telephone & Supply Co.	76
Buchart Associates	—
Budelman Electronics Corporation	62
Burgess-Manning Company	—
Burroughs Corp.	—
Butler Manufacturing Co.	—
B. Y. Dial Service	77
C&D Batteries, Inc.	35
Cabaniss-Pogue Co.	74
Cable Construction Co.	77
Cable Spinning Equipment Co.	48
Calculagraph Company	—
Chance Co., A. B.	60
Charles Machine Works, Inc.	—
Chicopee Mills, Inc.	—
Cleveland Inst. of Electronics	—
Clifton Appraisal Co.	74
Collins Radio Co.	—
Colorado Fuel & Iron Co., The	—
Commercial Cord Company, Inc.	42
Communication Equipment & Engineering Co.	69
Consolidated Electrodynamics Corp.	—
Cook Electric Company	—
Copperweld Steel Co.	13
Crane, Inc., Carl C.	74
Cushman Motor Works, Inc.	—
Dahl Co., Inc., George W.	53
Danish Import	76
Davis Construction Co.	—
Davis Manufacturing Co.	—
Dial Haven, Inc.	77
Diamond Expansion Bolt Co.	—
Dillon & Co., Inc., W. C.	—
Donnelley & Sons, R. R.	—
Duo-Safety Ladder Corp.	63
E. & C. Contracting Co.	74
Everstick Anchor Co.	—
Exide Industrial Division—The Electric Storage Battery Co.	31
Fitchburg Engineering Corporation	—
Floor-Con	—
Fodness and Associates	74
Foley Construction Co., Robert E.	77
Ford Co., T. A.	66
Ford Motor Company, The	10-11
Gagne Enterprises, Inc.	61
General Cable Corporation	—
General Insulated Wire Works	—
General Machine Products Co., Inc.	61
General Telephone Directory Co.	Back Cover
Gladwin Plastics, Inc.	—
Gould-National Batteries, Inc.	16
Graybar Electric Co.	—
Haley & Co., R. G.	—
Harris-McBurney Company	—
Henkels & McCoy	77
Highway Trailer Company	—
Hirsch Organization, Inc. Gustav	—
Hitachi Ltd.	—
Holan Corp.	79
Indiana Steel & Wire Co.	68
International Teletronics	—
Irwin Auger Bit Co.	—
Johns-Manville	—
Kearney Co., Jas. R.	—
Kellogg Switchboard & Supply Co.	6-7
Kennecott Wire & Cable Div.	—
Keystone Steel & Wire Co.	—
Killoren Company	—
Klein & Sons, Mathias	64
Kohler Co.	—
Koiled Kords, Inc.	—
Koppers Co., Inc. Wood Preserving Div.	77
Leich Sales Corporation	32-33
Lindsay Telephone Supply Co.	73
Line Equipment Sales	77
Lorain Products Corp., The	5
Magnolia Chemical Co., Inc.	56
Malleable Iron Fittings Co.	—
McCabe-Powers Body Company	—
McGrath Engineering, Inc.	74
Minnesota Mining & Manufacturing Co.	—
Monsanto Chemical Co.	—
Organic Chemical Div.	—
Plastics Div.	—
Morrison-Pelsue Co.	—
Murphy Engineering Laboratories	74
Natco Corporation	—
National Pole & Treating Div.	—
National Standard Co.	—
National Telephone Supply Co.	—
Neubauer Mfg. Co.	—
Neuses, Inc., P. K.	77
Newman Corporation, M. M.	—
North Electric Company	36-37
Okonite Company, The	—
Onan & Sons, D. W.	—
Orangeburg Manufacturing Co., Inc. Div. of The Flintkote Co.	—
Osmose Wood Preserving Co.	54
Owens-Illinois	—
Page & Hill, Inc.	—
Panhandle Electric Sales, Inc.	—
Panoramic Radio Products, Inc.	59
Penta Wood Products, Inc.	77
Phelps Dodge Copper Products Corp.	—
Philco Corporation Gov't & Industrial Div.	29
Plastic Wire & Cable Corp.	57
Plastimayd Corporation	—
Porter, Inc., H. K.	—
Power Unit Sales Co.	—
Preformed Line Products Co.	—
Puregas Equipment Corp.	—
Radio Frequency Labs, Inc.	—
Railway Communications, Inc.	—
Ramset Fastening System	44
Rawlplug Company, Inc.	—
Raytheon Company	—
Recordak Corp.	—
Reichhold Chemicals, Inc.	—
Reliable Electric Company	49
Republic Creosoting Company	67
Rohn Manufacturing Co.	66
Rolatape, Inc.	52
Runzel Cord & Wire Co.	—
S & G Manufacturing Co.	51
Schauer Mfg. Co.	—
Seymour Smith & Son	—
Sherron Metallic Corp.	—
Sierra Electronics Corp.	—
Sloan, Cook & Lowe Co.	74
Stainless, Inc.	—
Stampings, Inc.	57
Sterile Telephone Corp.	—
Stewart Bros.	—
Stromberg-Carlson Co.	2-3, 59
Studebaker Packard Corporation	—
Superior Cable Corporation	65
Suttle Equipment Corporation	52
Tanner Co., O. C.	77
Taylor-Colquitt Co., The	—
Telectric Co.	75
T.E.I. Corp.	77
Tele-Muff Co.	—
Teletype Corporation	—
Tele-Wire Supply Co., Inc.	—
Templeton, Kenly & Co.	—
Thornhill Publishing Co.	—
Trailways Bus System	12
Transandean Associates, Inc.	27
Truck Equipment Company	—
Tudor & Yager, Inc.	74
Union Carbide Plastics Company	39
United Electric Controls Co.	71
United States Instrument Corp.	—
United States Motors Corp.	50
United States Steel Corp. American Steel & Wire Co.	—
Universal Controls Corp.	—
Utility Equipment Co.	—
Utility Service Co., Inc.	58
Utility Tool & Body Co.	—
Warren Mfg. Co., The	—
Weikel Line Company	77
Western Electric Co.	—
Whitney-Blake Co.	8-9
Williams Inspection Co., Inc., A. W.	74
Winders & Geist, Inc.	—
Wiremold Co., The	—
Wyoming Valley Equipment Div.	—
York-Hoover Corporation	—

WESTERN REPRESENTATIVE: McDonald-Thompson, 625 Market St., San Francisco, Cal.; 3727 W. Sixth St., Los Angeles; 620 Sherman St., Denver, Colo.; National Bldg., Seattle, Wash.; 3217 Montrose Blvd., Houston, Tex.; 2727 Oak Lawn Ave., Dallas 19, Tex.; 404 Times Bldg., Portland 4, Oregon.



Make reel loading a one-man job

One man can load two cable reels and be on his way in three minutes with a Holan Multiple Reel Trailer.

Such speedy handling of heavy reels of cable by one man is possible because of simple, safe, functional design and a patented loading device.

Holan offers a complete line of 1-, 2-, 3-, and 4-reel trailers —all incorporating the same design features that assure safe, fast, economical operation by one man.

Pickup arms lower to within 12″ of the ground, handle reels as small as 24″ and as large as 54″ without any special attachments and without any heavy lifting by the operator.

A pushbutton controlled electric winch or hand winch lifts the reel into place. Both are located away from the hoisting mechanism, thus assuring that the operator stands clear of the reel while loading and unloading.

The electric winch is designed to prevent overloading of the lifting cable—even if the operator continues to apply power after the lift arms have reached maximum height. Reels roll freely to forward positions on spindle bars of sufficient length to support them in the event careless handling should cause the reels to shift from side to side or out of square.

Exclusive 22″ electric disc brakes eliminate overspin, give positive braking action, and provide tension for reconductoring.

Write today for your copy of the Multiple Cable Reel Trailer brochure—or ask your Holan Field Representative for the facts that prove reel handling can be a one-man job.

Holan Corporation, 4100 West 150th St., Cleveland 35, Ohio
Plants in: Cleveland, Ohio; Griffin, Georgia; Phoenix, Arizona

Holan

Subsidiary of THE OHIO BRASS COMPANY

HOLAN

Let our "Revenue Men" show you

THE MEANING OF DIRECTORY COOPERATION!

Take a man like

Arvel Phillips

Arvel is one of our "revenue men" in Herrin, Illinois.

He attended Southern Illinois University in Carbondale, and later served as principal of the elementary school in Benton, Illinois.

After a hitch in the Coast Guard from 1942 to 1945, Arvel returned home and began his career in sales.

It was in 1952 that he joined the General Telephone Directory Company as a sales representative in our Herrin Unit. In 1954, he was promoted to supervisor.

He, his wife and his 13-year-old son make their home right in Herrin. When Arvel is not working, he spends most of his time outdoors. His hobbies are baseball, golf, boating, hunting and fishing. He puts his sports knowledge to good use in his work with the Boy Scouts, home town boys' baseball teams and Church youth groups.

Arvel Phillips is a good example of the "revenue men" who work for General Telephone Directory Company and for you. Men who are an asset to any community in which they live.

You get more than extra sales when you put one of our "Revenue Men" to work on your directory.

His manners, his methods will be a positive credit to your company. He'll be welcomed by your advertisers.

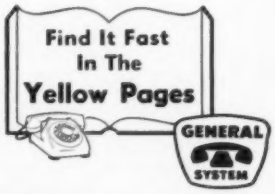
He'll work together with you to produce a book you can be proud of. A directory with complete Yellow Pages service–showing the public where to go for all kinds of purchases, rentals and services. A directory with maximum accuracy, maximum revenue.

And you won't have a worry in the world. Selling, publishing and printing are all done to perfection as part of our Complete Directory Service Plan.

Want to know more about it? A phone call or letter to our nearest office will bring a representative on the double.

GENERAL TELEPHONE DIRECTORY COMPANY

1800 Oakton Boulevard
Des Plaines, Ill.
VAnderbilt 4-2164



DIVISION OFFICES:

Bloomington, Illinois • Columbia, Mo. • Durham, N. C. • Erie, Pa.
Fort Wayne, Ind. • Honolulu, H. I. • Lexington, Ky. • Long Beach, Calif.
Madison, Wis. • Manila, P. I. • Muskegon, Mich. • St. Paul, Minn.
San Angelo, Tex. • San Francisco, Calif. • Spokane, Wash. • Tampa, Fla.